
RFT 21-116 School Renovations – John T. Tuck Public School

The following, issued by the Halton District School Board March 30, 2021, shall be incorporated in the specifications and shall form part of the proposal document for the above.

REVISED:

1. Revise Part A - Outline and Instructions, Item .8 Planned Schedule of Events - Project Schedule - Project Timelines for Completion to July 5, 2021 - October 31, 2021.
2. Increase Contingency Allowance to \$80,00.00 from \$10,000.00 as shown on the attached Revised Form of Tender.

CLARIFICATION:

1. Bidders to include all abatement work as part of the Base Bid. Refer to the attached Asbestos Abatement Specifications and Pre-Renovation Designated Substances and Hazardous Materials Survey dated March 25, 2021 by Arcadis.

ATTACHED:

1. Revised Form of Tender – Bidders must submit their response using the attached revised form of tender.
2. Asbestos Abatement Specifications - Section 02080 - Asbestos Remediation Program (22 pages)
3. Pre-Renovation Designated Substances and Hazardous Materials Survey dated March 25, 2021 by Arcadis. (55 pages)
4. Addendum 1 dated March 30, 2021 from Grguric Architects Incorporated. (5 pages)

RECEIPT OF ADDENDA MUST BE ACKNOWLEDGED ON THE FORM OF TENDER.

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END OF ADDENDUM 1



REVISED FORM OF TENDER

Project: School Renovations – John T. Tuck Public School

Project Reference #: RFT 21-116

From
(Bidder): _____

Company Name

Street Address

City, Province and postal code

Phone Number

Email Address

To (Owner): Halton District School Board
2050 Guelph Line
Burlington, Ontario L7P 5A8

We, the undersigned, having examined the Tender Documents for the above-named Project, including Addenda, hereby offer to perform the Work in accordance with the Tender Documents, for the Stipulated Price of:

Base Bid Amount	\$
Cash Allowance (Inspection & Testing; PA System Changes)	\$10,000
Contingency	\$80,000
Total Amount (Excluding HST):	\$

REVISED Form of Tender Continued
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Proposed Sub-Contractors:

Electrical _____

Mechanical _____

Roofing _____

We, the undersigned, declare that:

- a. We agree to perform the Work within the required completion time specified in the Tender Documents,
- b. We have arrived at the Tender without collusion with any competitor,
- c. This Tender is open to acceptance by the Owner for a period of 90 days from the date of Tender Closing,
- d. All Form of Tender supplements called for by the Tender Documents from an integral part of this Tender.

Signature: _____
LEGAL NAME OF BIDDER DATE

AUTHORIZED SIGNATURE OF BIDDER & TITLE PRINTED NAME
I have the authority to bind the Bidder

SEAL

ASBESTOS ABATEMENT SPECIFICATIONS
JOHN T. TUCK PUBLIC SCHOOL

ASBESTOS ABATEMENT SPECIFICATIONS
John T. Tuck Public School

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At Rear:

Drawing No. 30065534-1 - Locations of Work Areas – First Floor Plan

Drawing No. 30065534-2 - Locations of Work Areas – Second Floor Plan

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1.0 PART 1 – GENERAL

1.1 GENERAL

- .1 The requirements as set out in these specifications may, at times, exceed the procedures detailed in the various applicable regulations. All work shall be done in compliance with the specifications AND the regulations. Should there be any discrepancy or conflict between the documents, the most stringent shall apply.

1.1 OUTLINE OF WORK

- .1 The intent of the work is to remove select asbestos-containing materials to the extent practicable and to remove select windows where asbestos-containing vermiculite is present inside cavities in concrete block walls adjacent to windows, in designated areas in the facility prior to renovations.
- .2 Replacement of removed materials is not part of this contract.
- .3 Refer to Window Replacement Specifications for additional details and information.
- .4 Coordinate all work with the General Contractor and sub trades as required.
- .5 Removal of mechanical equipment such as through-window ventilation units and air conditioning units and isolation and/or removal of electrical systems penetrating window systems will be performed by the General Contractor's sub trades prior to commencement of remedial work.
- .6 Provide all supervision, labour, equipment, tools, materials, waste management, haulage and disposal, and other services, as required, for undertaking and completing all the work, as detailed below.
- .7 **Work Area 1 – Rooms 101, 107, 107A, 108, 108A, 110, 111, 200, 205, 206, 207, 209 and 210**
 - .1 Prepare the areas as indicated above and on the attached floor plans for Type 1 and Type 2 Enclosure asbestos removal operations.
 - .2 Supply and install scaffolding and/or scissor lift and zoom-boom equipment, in accordance with all applicable regulations, to provide sufficient and safe access to the work areas.
 - .3 In the indoor portions of the work areas, construct enclosure systems using suitable framing materials and cover the walls, floors, and ceilings of the enclosure with clear 0.15 mm polyethylene sheeting sealed with duct tape. Curtains of polyethylene sheeting must be fitted on each side of the entrance to the enclosure (curtain flaps may require weights at the bottoms to ensure proper closing).
 - .4 Remove and dispose as clean demolition waste, caulking applied to the interior and exterior window frames in Rooms 101, 107A and 108A, as required, to allow for the windows to be removed. Care must be taken to not damage windowsills which are to remain.

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- .5 Remove and dispose as clean demolition waste, caulking applied to the exterior window frames in Rooms 107, 108, 110, 111, 200, 205, 206, 207, 209 and 210, as required, to allow for the windows to be removed.
- .6 Using Type 1 asbestos removal procedures, remove and dispose as asbestos waste, all asbestos-containing caulking applied to the interior window frames in Rooms 107, 108, 110, 111, 205, 206, 207, 209 and 210. Caulking is located between the window frames and adjacent building materials and between the window mullions. Care must be taken to not damage windowsills which are to remain.
- .7 Using Type 2 asbestos removal procedures, remove window units complete, thoroughly clean window units of any asbestos-containing vermiculite that may have been disturbed by the actions of removing the windows and turn windows over to the General Contractor for disposal as clean demolition waste. Care must be taken when removing windows to not damage windowsills which are to remain.
 - .1 If required, using, HEPA vacuums, clean any fallen asbestos-containing vermiculite that may have been dislodged from the concrete block wall cavities and any asbestos containing paint on concrete block walls that may have been disturbed by the actions of removing the windows.
 - .2 If required, supply and install a suitable sealant such as caulking or expandable foam in all voids and cracks in the concrete block exposed by the window removals to enclose any asbestos-containing vermiculite present inside the concrete block wall cavities.
- .8 Following completion of window removal operations, the General Contractor will install temporary hard hoarding to cover voids where windows were removed. Coordinate the scheduling of the window removal work with the General Contractor so hoarding will be installed the same day windows are removed.
- .8 **Work Area 2 – Rooms 112, 115, 116, 211, 212, 213 and 214**
 - .1 Prepare the areas as indicated above and on the attached floor plans for Type 1 asbestos removal operations.
 - .2 Supply and install scaffolding and/or scissor lift and zoom-boom equipment, in accordance with all applicable regulations, to provide sufficient and safe access to the work areas.
 - .3 Removal and dispose as asbestos waste, all asbestos-containing caulking applied to the interior and exterior window frames located between the window frames and adjacent building materials.
 - .4 Following completion of remedial work, supply and install a suitable temporary caulking to the exterior side of the window frames where caulking was removed to prevent rain infiltration.
- .9 Vermiculite insulation located inside concrete block walls cavities contains “libby amphibole” which is an asbestos-containing material. Caulking contains 3% to 4% chrysotile asbestos. Paint on concrete block contains 3% chrysotile asbestos.

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- .10 All waste is to be removed from the site and disposed. Asbestos waste disposal bins are not to be left on School property unless fully enclosed with an integral metal roof system and locked. Disposal bins must be removed immediately on completion of work.
- .11 Schedule
- | | | |
|----|------------------------------|-----------------------------------------------|
| .1 | Mobilization | To be coordinated with the General Contractor |
| .2 | Complete Work and Demobilize | To be coordinated with the General Contractor |

1.2 GENERAL REQUIREMENTS

- .1 The location and availability of utilities including water, sewer and electrical power is to be determined on site. The Asbestos Contractor shall co-operate with all others on site. Should there be any disagreement, or should Contractors be unable to reach a satisfactory working arrangement, the Asbestos Consultant shall determine the manner for proceeding. The Asbestos Contractor shall not be entitled to any additional payment.
- .2 The Asbestos Contractor is responsible for making all arrangements, and for paying for the disposal of all waste materials in accordance to all applicable government laws and regulations including local, provincial and federal.
- .3 The Asbestos Contractor is advised that extended hours of work may be required to meet the schedules as detailed in the Scope of Work and shall allow for the cost thereof including shift premiums and overtime. The Asbestos Consultant shall be advised in writing at least four days in advance of the proposed working hours.
- .4 The Asbestos Contractor shall furnish and post on site the name and current phone number of an authorized representative(s) who can be contacted on a 24-hour basis in case of an emergency.
- .5 All precautions will be taken to prevent the spread of contaminated material and to protect all parties including Asbestos Contractor's personnel, Owner's employees and the public from asbestos dust exposure during the course of the work. The documents outline the minimum levels of precaution to be taken.
- .6 **All work shall be done in compliance with the specifications and the Ontario Regulation 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations – made under the Occupational Health and Safety Act.** Should there be any discrepancy or conflict between the documents, the most stringent shall apply.
- .7 Contract conditions include, but are not limited to, complying with all Regulations, taking all precautions necessary to control the release of asbestos fibres within the work areas, preventing the release of asbestos fibres outside the work areas, and providing appropriate protection from exposure to asbestos fibres for all parties. Failure to meet any of these conditions will be considered a fundamental breach of the Contract.
- .8 The Asbestos Consultant will visit the site at his/her discretion to familiarize himself/herself with the progress and quality of the Work and to determine if the Work is proceeding in accordance with the Contract Documents.

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- .9 The Asbestos Consultant shall have the authority to immediately stop the Work through a written instruction if, in his opinion, the Work does not conform to the requirements of the Contract Documents, or if continuance of the Work could subject the Owner, his employees or the public to a hazardous condition. The Work shall not recommence until such time as the deficiency or hazardous situation has been corrected and a written notice to proceed has been issued by the Asbestos Consultant.
- .10 If the Asbestos Contractor fails to comply with requirements dealing with the control of asbestos fibres and the health and safety of Asbestos Contractor employees, Asbestos Consultant and Owner personnel or the Public, the Owner, or the Owner's representative, may verbally instruct the Asbestos Contractor to cease work immediately with written confirmation to follow within two working days. If the Asbestos Consultant gives a written statement to the Owner and the Asbestos Contractor that sufficient cause exists, the Owner may notify the Asbestos Contractor in writing that he is in default of his contractual obligations.
- .11 Any employee shall be replaced, at the written request of the Asbestos Consultant, if working, or causing others to work, in violation of O.Reg. 278/05.
- .12 The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following and shall name the Owner and Arcadis Canada Inc. as additional insureds:
- .1 General Liability \$5 million;
 - .2 Automotive Liability \$2 million;
 - .3 Pollution Liability \$5 million including asbestos operations.
- .13 The supervisor must have proven experience and proficiency in the type of Work being undertaken under this Contract.
- .14 The supervisor shall be replaced, at the written request of the Asbestos Consultant, if found to be incompetent or inattentive to the needs of the project.
- .15 Where standards of performance are specified or implied and the Work does not comply with the performance specified or implied, such deficiencies shall be corrected as directed by the Asbestos Consultant. Any subsequent testing shall be done at the Asbestos Contractor's expense.

1.3 DEFINITIONS

- .1 *HEPA Vacuum:*
- .1 High Efficiency Particulate Aerosol (HEPA) filtered vacuum equipment acceptable to Health and Welfare Canada and meeting U.S. Military Standard 282. This vacuum equipment shall have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 micrometer or larger.
- .2 *Polyethylene sheeting sealed with tape:*
- .1 Polyethylene sheeting of thickness specified sealed with tape along all edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through the sheeting into a clean area.

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- .3 *Inspector:*
 - .1 Representative of Arcadis Canada Inc. (Arcadis) designated by the owner to provide inspection and air monitoring of the Contractor's work.
- .4 *Authorized Visitor:*
 - .1 Representative of the building owner, Arcadis, and/or persons representing regulatory agencies.
- .5 *Amended Water:*
 - .1 Water with a non-ionic surfactant added to reduce water tension to allow thorough wetting of asbestos fibres.
- .6 *Airlock:*
 - .1 A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area typically consisting of two curtained doorways at least 1.5 m apart.
- .7 *Curtained Doorways:*
 - .1 An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway.
 - .2 All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings an additional 1/3 of the doorway width.
- .8 *Operating Area:*
 - .1 Area where no removal or repair Work is underway.
- .9 *Clean Area:*
 - .1 Either an operating area or an area in which removal Work has already been completed.
- .10 *Work Area:*
 - .1 Where the actual removal of asbestos-containing materials take place.
- .11 *Negative Pressure:*
 - .1 A system which extracts air from the work area and discharges this air directly outside the building, sufficient to maintain a minimum pressure differential of 0.5 mm (0.02 inch) of water column relative to adjacent areas outside of work areas. This air extraction system is to be equipped with a High Efficiency Particulate Aerosol filtering system before discharge.

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.12 *Confined Space:*

- .1 A fully or partially enclosed space,
 - .1 that is not both designed and constructed for continuous human occupancy, and
 - .2 in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

1.4 REGULATORY AGENCIES

- .1 Comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirement shall apply. These include, but are not limited to, the following:
 - .1 Ontario Ministry of Labour, Occupational Health and Safety Division, *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, O.Reg. 278/05 – made under the *Occupational Health and Safety Act*.
 - .2 Ontario Ministry of the Environment *Regulation 347* (previously 309) under the Environmental Protection Act (as amended by O.Reg. 175/83; O.Reg. 574/84; O.Reg. 322/85), June 17, 1985.
 - .3 Government of Canada *Regulations Respecting the Handling, Offering for Transport and Transporting of Dangerous Goods*. (Extract from the Canada Gazette Part II, dated February 6, 1985.)
 - .4 Government of Ontario *Occupational Health and Safety Act, 1978 and Regulations for Construction Projects*.
 - .5 Office of the Fire Commissioner of Canada.
 - .6 Ontario Electrical Safety Code.
 - .7 Regulation 647 RRO '70 of the Plumbing Code.
- .2 *Patents:*
 - .1 It shall be the Contractor's responsibility to ensure that all applicable patent laws are complied with.

1.5 FIRE SAFETY PLAN

- .1 Prior to initiating any work on the site, the Contractor shall prepare and submit in writing to the Engineer a Fire Safety Plan. The Plan shall be in accordance to the requirements set forth in Section 2.14, Construction and Demolition Sites, of the National Fire Code and shall include:
 - .1 the designation and organization of site personnel to carry out fire safety duties, including fire water services if applicable;
 - .2 the emergency procedures to be used in the case of fire, including:

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- .1 sounding the fire alarm;
- .2 notifying the fire department;
- .3 instructing site personnel on procedures to be followed when the alarm sounds; and
- .4 firefighting procedures;
- .3 the control of fire hazards in and around the building;
- .4 maintenance of firefighting facilities; and
- .5 special requirements as may be identified by the building owner.
- .2 Implementation of the Fire Safety Plan shall be the sole responsibility of the Contractor, and the above shall, in no way, limit the Contractor's statutory and regulatory obligations. During the work, the Fire Safety Plan shall be prominently displayed at the site and its requirements included in site safety training and awareness programs.

1.6 SUBMITTALS

1.6.1 Submittals Before Commencing Work

- .1 The following documentation shall be submitted to the Inspector with a dated covering letter listing attachments a minimum 48 hours prior to commencement of the Work:
 - .1 *Permits and Notifications:*
 - .1 All necessary permits for transporting and disposal of asbestos waste. Submit proof satisfactory to Inspector that suitable arrangements have been made to receive and properly dispose of asbestos waste. Copies of all Notifications required by Section 1.11.
 - .2 *Material Safety Data Sheets:*
 - .1 Material Safety Data Sheets, or equivalent, for any sealant, surfactant or other material proposed for use. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.
 - .3 *Supervisory Personnel:*
 - .1 Names of supervisory personnel who will be responsible for work area(s). **One of these supervisors must remain on site at all times asbestos removal or cleanup is occurring.** Submit proof that supervisory personnel have over 2000 hours experience on asbestos abatement projects, have performed supervisory functions on at least two other asbestos projects and have achieved the level of training as set out by the Regulation.
 - .4 *Schedule:*

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- .1 Provide a bar chart indicating planned progress for critical activities as required under **Scope of Work** as well as additional information listed below a minimum of 48 hours prior to commencement of any preparatory work indicating:
 - .1 shifts to be worked;
 - .2 proposed workforce;
 - .3 starting date;
 - .4 estimated date of commencement of asbestos removal;
 - .5 estimated date of completion of asbestos removal;
 - .6 estimated completion date.
- .5 *Insurance:*
 - .1 Provide a Certificate signed by the insurance agency naming the Owner and Arcadis Canada Inc. as co-insureds.
 - 2. The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following:
 - .1 General Liability \$5 million;
 - .2 Automotive Liability \$2 million;
 - .3 Pollution Liability \$5 million including asbestos operations.
 - .3 The Asbestos Contractor must provide thirty (30) days notice of cancellation or amendment of coverage.
- .6 *Fire Safety Plan:*
 - .1 In accordance to Article 1.6 above.
- .7 *Confined Space:*
 - .1 If a work area, or part thereof, is a confined space, the contractor shall submit:
 - .1 a co-ordination document (see Section 1.13.1.1);
 - .2 a written program (see Section 1.13.1.2);
 - .3 a written plan (see Section 1.13.1.4).

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.8 *Asbestos Training:*

.1 A letter certifying that:

- (a) *every worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Worker Training Program approved by the Ministry of Training, Colleges and Universities; and*
- (b) *every supervisor of a worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Supervisor Training Program approved by the Ministry of Training, Colleges and Universities. O.Reg. 278/05, s. 20(1).*

1.6.2 Submittals Before Commencing Asbestos Removal

- .1 Proposed Work Area emergency exit procedures.
- .2 If required, evidence (letter or other suitable documentation) of proper construction, inspection and installation of GFI panel by licensed electrician in compliance to all regulatory requirements and codes.

1.6.3 Submittals Upon Completion of Work

- .1 Asbestos waste haulage and disposal documentations including Bills of Lading, waste transfer documents and dump receipts.
- .2 All documentation as specified in the contract General Conditions including, but not limited to, Workplace Safety and Insurance Board Certificate, Statutory Declarations and Proof of Publication of Substantial Performance.

1.7 EXISTING CONDITIONS

- .1 Vermiculite insulation located inside concrete block walls cavities contains “libby amphibole” which is an asbestos-containing material. Caulking contains 3% to 4% chrysotile asbestos. Paint on concrete block contains 3% chrysotile asbestos.
- .2 Existing conditions are documented in a report prepared by Arcadis Canada Inc. for the Halton District School Board entitled “*Pre-Renovation Designated Substances and Hazardous Materials Survey*, John T. Tuck Public School, 3365 Spruce Avenue, Burlington, Ontario” dated March 25, 2021 which is included with the tender documents.
- .3 Masonry applications may contain silica. Paint applications may contain lead and mercury. Appropriate dust control procedures and respiratory protective equipment are to be used if disturbing these materials.

1.8 RESTRICTIONS

- .1 Do not allow smoking, eating or drinking in the work area.
- .2 Do not allow entry to work area by unauthorized persons.
- .3 Compressed air shall not be used in the work area.

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- .4 Open flames will not be permitted in the work area (including but not limited to torches and propane-fired heaters).

1.9 WORKER PROTECTION

.1 Instructions:

- .1 Before commencing Work, instruct workers in all aspects of work procedures and protective measures.

.2 Respiratory Protection:

- .1 Provide workers with personally issued and marked respiratory equipment acceptable to the Occupational Health and Safety Division of the Ontario Ministry of Labour, suitable for the asbestos exposure in the work area.
- .2 Ensure that suitable respiratory protective equipment is worn by every worker who enters the work area. A respirator provided by an employer and used by a worker:
 - .1 shall be in accordance to O.Reg. 278/05, Section 13, respirators.
 - .2 shall be fitted so that there is an effective seal between the respirator and the worker's face;
 - .3 shall be assigned to a worker for the worker's exclusive use;
 - .4 shall be used and maintained in accordance with the procedures specified by the equipment manufacturer;
 - .5 shall be cleaned, disinfected and inspected after use on each shift, or more often if necessary;
 - .6 shall have damaged or deteriorated parts replaced prior to being used by a worker; and
 - .7 when not in use, shall be stored in a convenient, clean and sanitary location.

.3 Protective Clothing:

- .1 Provide workers with protective clothing which shall:
 - .1 be worn by every worker who enters the work area,
 - .2 be made of a material which does not readily retain nor permit penetration of asbestos fibres,
 - .3 consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck,
 - .4 include suitable footwear, and
 - .5 be repaired or replaced if torn.

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1.10 NOTIFICATIONS

- .1 Notify, in writing, the local Fire Department of the extent of the work, including a copy of the Fire Safety Plan detailed in Article 1.6 above.
- .2 Notify, orally and in writing, an inspector at the office of the Ministry of Labour nearest the work place of the operation. O.Reg. 278/05, Section 11.
 - .1 The written notice required by subsection (1) shall set out:
 - .1 the name and address of the person giving the notice;
 - .2 the name and address of the owner of the place where the work will be carried out;
 - .3 the municipal address or other description of the place where the work will be carried out sufficient to permit the inspector to locate the place, including the location with respect to the nearest public highway;
 - .4 a description of the work that will be carried out;
 - .5 the starting date and expected duration of the work; and
 - .6 the name and address of the supervisor in charge of the work.
- .3 Notify the Inspector a minimum of eight hours prior to initiation of the following phases of the project:
 - .1 commencement of asbestos removal;
 - .2 commencement of sealant application;
 - .3 dismantling of the enclosure; and
 - .4 removing asbestos waste from the work area.

1.11 PROTECTION, REPAIR AND REPLACEMENT OF EQUIPMENT AND MATERIALS

- .1 All equipment within and surrounding the work area shall be suitably protected by the Contractor during the work periods.
- .2 All equipment damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Owner.

1.12 CONFINED SPACES

Not Applicable.

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2.0 PART 2 – PRODUCTS

2.1 MATERIALS

.1 *Polyethylene:*

- .1 In 0.15 mm (6 mil) minimum thickness unless otherwise specified; in sheet size to minimize joints.

.2 *Tape:*

- .1 Reinforced duct tape suitable for sealing polyethylene under both wet conditions using amended water, and dry conditions.

.3 *Wetting Agent:*

- .1 50% polyoxethylene ester and 50% polyglycol or polyxyethylene ether, or equivalent approved product, and shall be mixed with water to a concentration to provide adequate penetration and wetting of asbestos-containing material.

.4 *Asbestos Waste Receptors:*

- .1 0.15 mm (6 mil) minimum thickness appropriately labelled, sealable polyethylene bags and 0.15 mm (6 mil) minimum thickness sealable clear polyethylene bags.

.5 *Rip-Proof Polyethylene:*

- .1 0.20 mm (8 mil) fabric made up from 0.13 mm (5 mil) weave and 2 layers 0.04 mm (1.5 mil) poly laminate, in sheet size to minimize joints.

.6 *Sealant:*

- .1 Slow-drying sealant which remains tacky on surface for a minimum of 8 hours for purpose of trapping residual airborne fibre during settling period. Product must have flame spread and smoke development ratings both less than 50. **Product shall leave a clear finish when dry. Acceptable products “Childers Chil-Lock CP-240” or equivalent.**

2.2 EQUIPMENT

- .1 All equipment brought on site must be thoroughly clean and free of all fibre, asbestos or otherwise, to the satisfaction of the Field Inspector. The Contractor will be fully responsible for the replacement of equipment rejected by the Inspector and for all costs resulting from site contamination due to dirty or faulty equipment.

.2 *Airless Sprayer:*

- .1 Spray equipment for the application of amended water and sealant such as Graco Hydrospray or equivalent:
 - .1 Fine atomizing spray nozzle: Nozzle for airless sprayer capable of delivering not less than 4.5 L per minute of fine particle spray of amended water.

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- .1 Hand pump-type pressure-can garden sprayer fabricated out of either metal or plastic equipped with a wand at the end of a hose that can deliver a stream or spray of liquid under pressure. **Only to be used on small removal and repair projects with the approval of the site inspector.**

.4 HEPA Vacuum:

- .1 High Efficiency Particulate Aerosol filtered vacuum equipment. Must have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. HEPA filters must have been individually tested and certified by the manufacturer.
- .2 All HEPA vacuums brought onto the job site shall be visibly clean, shall be in a good state of repair and shall be maintained in such state through completion of the project.

.5 Glovebag:

- .1 Prefabricated, purposely made, 0.20 mm minimum thickness, polyvinyl chloride bag with integral 0.25 mm thick polyvinyl chloride gloves.
- .2 Bag equipped with reversible double-pull, double-throw zipper on top to facilitate installation on pipe and progressive movement along pipe, with straps for sealing ends of bag around pipe, and with plastic flap under zipper for strength on pipe and to provide effective seal and with "ziploc" feature. Bags shall be secured using manufacturer's prescribed securing devices. Approval must be obtained from the Inspector for use of Glovebags. Bag must be acceptable to the Inspector for use.
- .3 Bag must have valves to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.

.6 Negative Pressure Units:

- .1 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to effect a negative pressure differential in the work area as compared to the immediate surrounding or clean area. The filtering system must be capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. The HEPA filters must have been individually tested and certified by the manufacturer and bear a label certifying performance. The unit is to be fitted with instrumentation to indicate pressure differential across the HEPA filter with an audible alarm to sound at a preset low differential pressure.
- .2 Construction of HEPA filter/fan cabinet units shall be airtight and all joints shall be caulked. The gasket seal between the filter housing and the retaining frame inside the cabinet shall provide a zero-leakage seal to avoid filter bypassing.
- .3 **Each negative pressure unit shall be integrity tested at the work site prior to commencement of asbestos removal.** The procedure must include the testing of the integrity of the entire cabinet. Written confirmation of the test results are to be provided to the Inspector. Retesting may be requested by the Inspector and performed by the Contractor should the unit be damaged or modified during the work.

ASBESTOS ABATEMENT SPECIFICATIONS
John T. Tuck Public School

.7 Differential Pressure Recorder:

- .1 Instrument to monitor and record the differential pressure between the Work Area and Clean Area.
 - .1 sensitivity: 0.025 mm (0.001 inches) WC increments between +0.25 mm to -2.5 mm (+0.010 to -0.100 inches) WC
 - .2 accuracy: +/- 1 %
 - .3 pressure alarms: audible high and low level alarm programmable within operating range
 - .4 printout: minimum 24 hr period at 15 minute intervals

.8 Ground Fault Panel:

- .1 Electrical Panel equipped with ground fault circuit breakers of sufficient capacity to power all electrical equipment and lights in work area. All breakers shall have 5 mA ground fault protection. Panel should be complete with all necessary accessories including ground fault interrupter lights, test switch to ensure unit is working, and reset switch. Ground fault receptacles on extension cords shall not be used without written authorization by the Consultant.
- .2 The GFI Panel must be constructed under the direction of a licensed Electrician and inspected by a licensed Electrician on a regular basis. Evidence of such construction and inspection shall be submitted to the Consultant prior to installation of the Panel on site.

ASBESTOS ABATEMENT SPECIFICATIONS
John T. Tuck Public School

3.0 PART 3 – EXECUTION

3.1 MAJOR ASBESTOS WORK (TYPE 3 OPERATIONS)

Not Applicable.

3.2 GLOVEBAG REMOVAL METHOD

Not Applicable.

3.3 TYPE 2 ENCLOSURE METHOD

.1 Preparation

- .1 Separate the work area from the rest of the building using rope barriers, signage and other appropriate means. The extent of the work area will depend on the amount of work to be done, potential for fibre release and the height of the work above floor level.
- .2 Identify the work area with clearly visible warning signs.
- .3 Construct a frame for the enclosure from 50 mm x 100 mm (2" x 4") studs or other suitable material (scaffolding, for example); if the potential exists for the disturbance of asbestos-containing material during the construction of the enclosure, wear a respirator and suitable protective clothing; ensure that the enclosure is of adequate size to permit the storage of equipment and waste.
- .4 If the room where the work is to take place is small, the room itself may serve as an enclosure, provided that all openings are sealed, the mechanical ventilation system servicing the room is disabled and the ventilation ducts to and from the work area are sealed.
- .5 Shut off the source of heat for piping systems (i.e., boiler or steam line header), where possible.
- .6 Cover the walls, floor and ceiling of the enclosure with clear 0.15 mm polyethylene sheeting sealed with duct tape. Curtains of polyethylene sheeting must be fitted on each side of the entrance to the enclosure (curtain flaps may require weights at the bottoms to ensure proper closing).
- .7 Disable the ventilation system servicing the enclosure; seal ventilation ducts to and from the work area.
- .8 Shut off and lock out electrical power within the enclosure.
- .9 When specified, establish a measurable negative pressure differential in the enclosure work areas by using fan/filter units equipped with High Efficiency Particulate Air (HEPA) filters. Units must be integrity tested on site and are to be exhausted directly outdoors.
- .10 Wear an appropriate respirator approved for use with asbestos and suitable protective equipment. Only persons wearing protective clothing and equipment shall be allowed to enter the work area. If the type of asbestos is other than chrysotile, a powered air purifying respirator shall be used.

ASBESTOS ABATEMENT SPECIFICATIONS
John T. Tuck Public School

- .11 Do not use compressed air.
- .12 Do not eat, drink, smoke or chew in the work area.
- .13 Vacuum surfaces of insulated material in the work area using a HEPA vacuum.
- .2 Asbestos Removal and Cleanup
 - .1 Thoroughly wet the asbestos-containing material with amended water using a garden sprayer.
 - .2 Remove wetted asbestos material in small sections directly into a waste receptor (polyethylene bag). **MAINTAIN ASBESTOS IN WET CONDITION AT ALL TIMES DURING REMOVAL AND/OR HANDLING. SEAL BAGS TIGHTLY.**
 - .3 Clean surfaces exposed by asbestos removal with a brush and wet sponge. Ensure that all surfaces of piping and other equipment are clean of all residue.
 - .4 Immediately after removal of asbestos, clean all surfaces and equipment within the work area, including polyethylene sheeting, using a HEPA vacuum or by damp wiping.
 - .5 If power tools are used for removal operations, power tools must be attached to dust collecting devices equipped with HEPA filters.
 - .6 Seal all surfaces of pipe or other equipment, enclosure, and ends of exposed insulation with a suitable encapsulant.
 - .7 After satisfactory completion of cleaning and before leaving the work area, decontaminate protective clothing (including boots) and equipment, etc., using a HEPA vacuum or by damp wiping.
 - .8 Dismantle the enclosure and wet and dispose of all polyethylene sheeting, brushes and sponges as asbestos waste.
 - .9 Dispose of protective clothing as asbestos waste.
 - .10 Wash hands and face at the completion of the work (before leaving the work area); damp wipe the respirator and store in a proper place.
 - .11 Make arrangements for disposal of all asbestos-containing waste material.

3.4 TYPE 1 OPERATION

- .1 *Preparation*
 - .1 Control the spread of dust from the work being performed by use of drop sheets, keeping doors closed, providing signage, etc. Ensure that appropriate equipment and materials are at hand.
 - .2 Restrict access to the work area using rope barriers, barricades, and other appropriate measures.
 - .3 Disable ventilation systems servicing the work area.

ASBESTOS ABATEMENT SPECIFICATIONS

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- .4 Provide and wear a non-powered air purifying respirator with high efficiency cartridges approved for use with asbestos and disposable coveralls including hood, elasticized cuffs and zipper over work clothes.
- .2 *Asbestos Removal and Cleanup*
 - .1 Do not eat, drink, chew or smoke within the work area.
 - .2 For caulking removal: place polyethylene drop sheet under work area. Apply amended water as required to reduce dust. Remove material by hand with minimal breakage and place immediately into waste receptor. Do not throw or allow the asbestos waste to fall to the ground and or floor from the work area. Ensure that all asbestos debris is removed including that on fasteners and adjacent building materials embedded in caulking. Double bag when removing debris from work area.
 - .3 Do not allow waste to accumulate.
 - .4 Clean dust and debris at regular intervals and at the end of each shift with a damp cloth or HEPA vacuum.
 - .5 Ensure that there is no visible airborne dust in the work area during the removal and cleanup operation.
 - .6 All duct tape, polyethylene sheets, disposable clothing and other consumables used for, and during the removal of asbestos shall be contained and disposed as asbestos waste.
 - .7 Wash hands and face prior to taking breaks and at completion of the work before leaving the work area. Damp-wipe the respirator after use and store in an appropriate place.

3.5 WASTE DISPOSAL

- .1 Asbestos-containing wastes shall be disposed of in accordance with procedures established by the Ontario Ministry of the Environment *Regulation 347 (as amended) under the Environmental Protection Act* and the Government of Canada *Transportation of Dangerous Goods Regulations*.
- .2 All waste is to be removed from the site and disposed. Disposal containers are not to be left on the property unattended unless fully enclosed and locked. Bins must be removed immediately on completion of work.
- .3 Both sides of every vehicle used for the transportation of asbestos and every waste container must display in large easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than 10 cm in height and the words:

CONTAINS ASBESTOS FIBRES

Avoid Creating Dust and Spillage
Asbestos May Be Harmful To Your Health
Wear Approved Protective Equipment

- .4 Both sides of every waste container must display in large easily legible letters the words '**ASBESTOS, WHITE, PRODUCT IDENTIFICATION NUMBER 2590**' or '**ASBESTOS,**

ASBESTOS ABATEMENT SPECIFICATIONS
John T. Tuck Public School

BLUE, PRODUCT IDENTIFICATION NUMBER 2212' in accordance with the type of asbestos being transported.

- .5 Every vehicle used for the transportation of asbestos waste shall display a Class 9 placard on the front, back and two sides of the vehicle.
- .6 The waste must be transported in a fully-enclosed truck, or alternatively, in a waste disposal skip. The driver must be familiar with cleanup and handling procedures and be trained to deal with spills or container breakage.
- .7 The truck must be equipped with a shovel and broom, wetting agent, protective clothing, respiratory protective equipment, polyethylene bags of at least 0.15 mm (6 mil) thickness, and bag closures and duct tape.
- .8 All waste must be transported with a **Bill of Lading** directly from the work area to the waste disposal site. The Bill of Lading is to indicate the source and type of asbestos, the Carrier, the amount, the destination (disposal site) and date all in accordance to applicable regulations. A copy of the Bill of Lading and disposal site receipt is to be provided to the Inspector.

3.6 AIR MONITORING

- .1 Air tests will be taken at the discretion of the Asbestos Consultant using the Phase Contrast Microscopy (PCM) method from the time asbestos-containing materials may be disturbed until the final visual inspection of the work area(s). PCM will be used for final clearance air monitoring analysis.

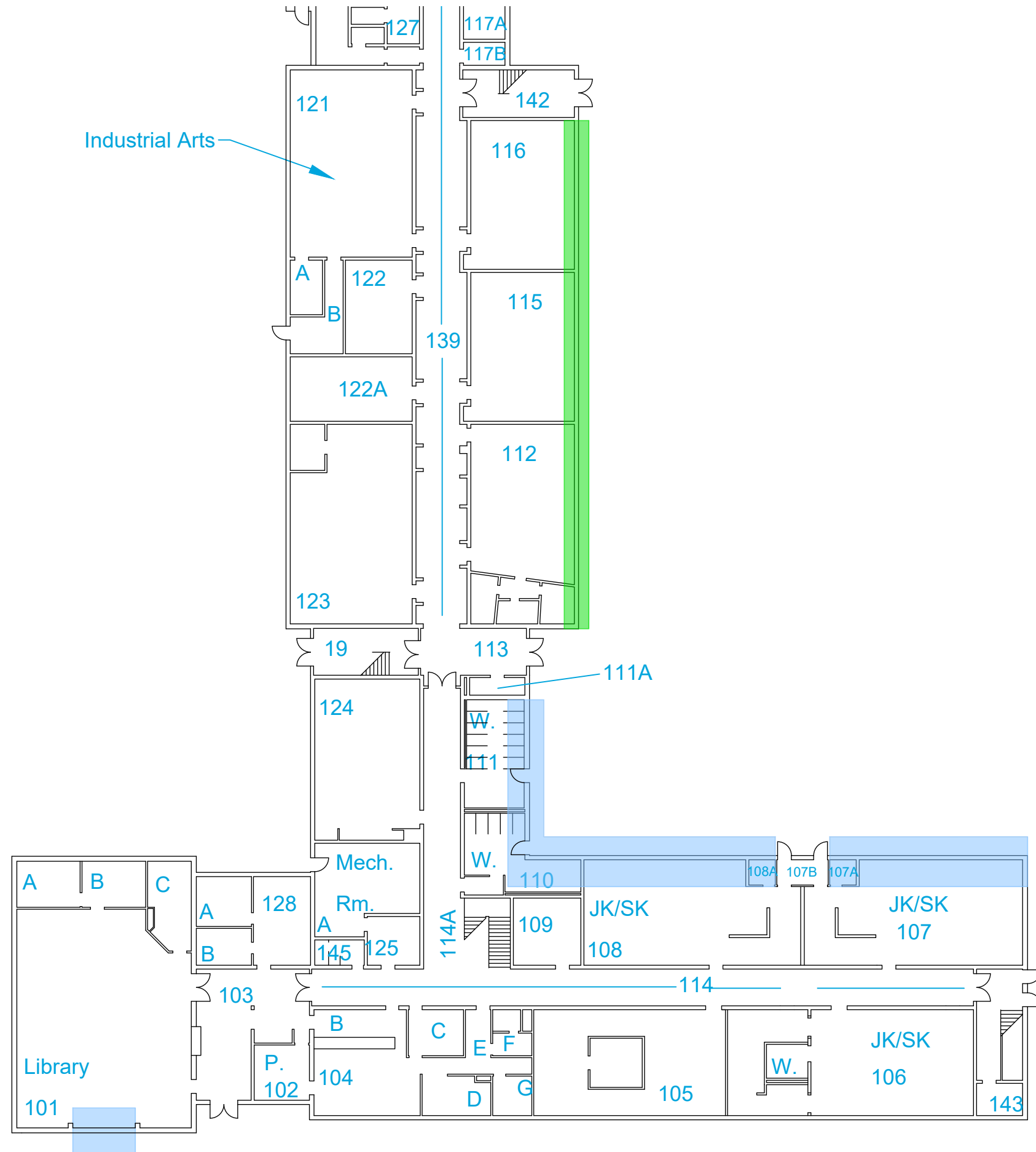
- .1 *Outside Asbestos Removal Work Areas:*

- .1 The maximum allowable fibre concentration outside the Work Areas during asbestos removal or cleanup shall be 0.05 f/cc. Should readings exceed this value, the work shall stop at the discretion of the inspector and proceed only after the cause of the high fibre counts has been remedied.
- .2 All costs associated with the cleaning, monitoring, and disruption caused by excessive fibre levels outside the Work Area and related to the work, are to be borne by the Asbestos Contractor including but not limited to:
 - .1 thorough cleaning with wet wiping and HEPA vacuuming by the Asbestos Contractor to the extent and satisfaction of the Inspector,
 - .2 all activities deemed necessary by the Inspector including area isolation, personnel relocation, additional visual inspections and air monitoring to confirm that the area has been adequately cleaned,
 - .3 disruption of plant production, office routine, and delays.

- .2 *Final Clearance Test:*

Not Applicable.

END OF SECTION




LEGEND:

116 FUNCTIONAL SPACE

WORK AREA 1

WORK AREA 2

NOTE:
INTERIORS OF ALL FIRE DOORS ARE ASSUMED TO CONTAIN ASBESTOS.



HALTON DISTRICT SCHOOL BOARD

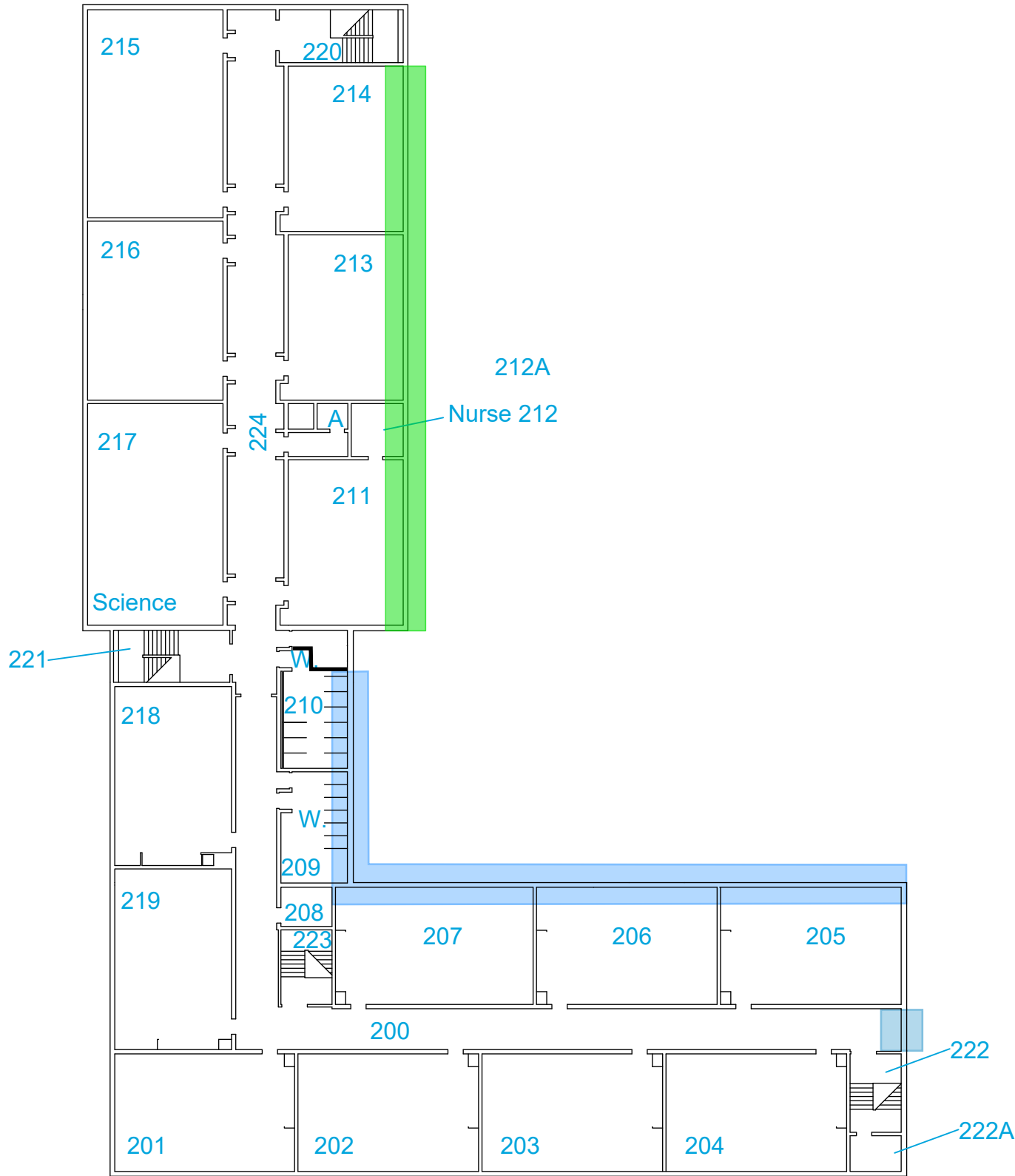
ASBESTOS ABATEMENT SPECIFICATIONS

LOCATIONS OF WORK AREAS

J.T TUCK PUBLIC SCHOOL
3365 SPRUCE AVENUE, BURLINGTON, ON

FIRST FLOOR PLAN

Drawn By: M.S	Approved By: DK	Project No: 30065534
Date: MAR 2021	Scale: AS SHOWN	Drawing No: 30065534-1



LEGEND:

- 217 FUNCTIONAL SPACE
- WORK AREA 1
- WORK AREA 2

NOTE:

INTERIORS OF ALL FIRE DOORS ARE ASSUMED TO CONTAIN ASBESTOS.



HALTON DISTRICT SCHOOL BOARD
ASBESTOS ABATEMENT SPECIFICATIONS
LOCATIONS OF WORK AREAS
J.T TUCK PUBLIC SCHOOL
3365 SPRUCE AVENUE, BURLINGTON, ON
SECOND FLOOR PLAN

Drawn By: M.S	Approved By: DK	Project No: 30065534
Date: MAR 2021	Scale: AS SHOWN	Drawing No: 30065534-2

HALTON DISTRICT SCHOOL BOARD

PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

JOHN T. TUCK PUBLIC SCHOOL

3365 SPRUCE AVENUE, BURLINGTON, ONTARIO

March 25, 2021

30065534

PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY
JOHN T. TUCK PUBLIC SCHOOL



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**PRE-RENOVATION
DESIGNATED
SUBSTANCES AND
HAZARDOUS
MATERIALS SURVEY**

JOHN T. TUCK PUBLIC SCHOOL

3365 Spruce Avenue, Burlington, Ontario

Halton District School Board

J.W. Singleton Education Centre

2050 Guelph Line

Burlington, Ontario L7P 5A8

Attention: Mr. Tom Hutcheson

Specialist, Capital Projects

Prepared by:

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Our Ref.:

30065534

Date:

March 28, 2021

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B	Laboratory Reports
C	Summary of Asbestos, Lead and Silica Work Classifications

1 INTRODUCTION

Arcadis Canada Inc. (Arcadis) was retained by the Halton District School Board to conduct a pre-renovation designated substances and hazardous materials survey in designated areas John T. Tuck Public School located at 3365 Spruce Avenue, Burlington, Ontario.

The information in this report is to be provided to all bidders on a project in accordance with the requirements of the Occupational Health and Safety Act.

The site is a two-storey building. The original building was constructed in 1960 with additions constructed in 1965 and 1987.

It is our understanding that a window, lighting and roof replacement project is scheduled for summer 2021. The designated study areas were limited to areas and building materials affected by the proposed renovation work and are based on information provided by the HDSB. The survey included primarily inspecting materials in the designated study areas that are anticipated to be affected by the renovation project.

The designated study areas, roof replacement areas and eras of construction are shown on floor plans provided in Appendix A.

The survey was undertaken to report on the presence or suspected presence of readily observable designated substances and hazardous materials.

1.1 Scope of Work

The scope of work for our investigation included:

- review of existing information;
- investigation of readily-accessible areas in the designated study areas for the presence of designated substances and hazardous materials used in building construction materials;
- obtaining representative bulk samples of materials suspected of containing asbestos and paint chip samples for lead;
- laboratory analyses of bulk samples for asbestos content;
- laboratory analyses of paint chip samples for lead content; and
- preparation of a report outlining the findings of the investigation.

Mr. Dwayne Kellyman of Arcadis visited the site on February 25, 2021 to conduct the designated substances and hazardous materials survey at John T. Tuck Public School.

2 REGULATORY DISCUSSION AND METHODOLOGY

Ontario Occupational Health and Safety Act (OHSA)

The Ontario *Occupational Health and Safety Act* (OHSA) sets out, in very general terms, the duties of employers and others to protect workers from health and safety hazards on the job. These duties include, but are not limited to:

- taking all reasonable precautions to protect the health and safety of workers [clause 25(2)(h)];
- ensuring that equipment, materials and protective equipment are maintained in good condition [clause 25(1)(b)];
- providing information, instruction and supervision to protect worker health and safety [clause 25(2)(a)]; and
- acquainting a worker or a person in authority over a worker with any hazard in the work and in the handling, storage, use, disposal and transport of any article, device, equipment or a biological, chemical or physical agent [clause 25(2)(d)].

In addition, Section 30 of the OHSA deals with the presence of designated substances on construction projects. Compliance with the OHSA and its regulations requires action to be taken where there is a designated substance hazard on a construction project.

Section 30 of the OHSA requires the owner of a project to determine if designated substances are present on a project and, if so, to inform all potential contractors as part of the bidding process. Contractors who receive this information are to pass it onto other contractors and subcontractors who are bidding for work on the project.

Regulation for Construction Projects, O.Reg. 213/91

The *Regulation for Construction Projects*, O.Reg. 213/91, applies to all construction projects. The following sections of the regulation would apply to situations where there is the potential for workers to be exposed to designated substances:

- | | | |
|------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 14 | (5) | A competent person shall perform tests and observations necessary for the detection of hazardous conditions on a project. |
| Section 21 | (1) | A worker shall wear such protective clothing and use such personal protective equipment or devices as are necessary to protect the worker against the hazards to which the worker may be exposed. |
| | (2) | A worker's employer shall require the worker to comply with subsection (1). |

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- (3) A worker required to wear personal protective clothing or use personal protective equipment or devices shall be adequately instructed and trained in the care and use of the clothing, equipment or device before wearing or using it.
- Section 30 Workers who handle or use substances likely to endanger their health shall be provided with washing facilities with clean water, soap and individual towels.
- Section 46
 - (1) A project shall be adequately ventilated by natural or mechanical means,
 - (a) if a worker may be injured by inhaling a noxious...dust or fume;
 - (2) If it is not practicable to provide natural or mechanical ventilation in the circumstances described in clause (1)(a), respiratory protective equipment suitable for the hazard shall be provided and be used by the workers.
- Section 59 If the dissemination of dust is a hazard to a worker, the dust shall be adequately controlled or each worker who may be exposed to the hazard shall be provided with adequate personal protective equipment.

Regulation for Designated Substances (O.Reg. 490/09)

The *Designated Substance Regulation* (O.Reg. 490/09) specifies occupational exposure limits (OELs) for designated substances and requires an assessment and a control program to ensure compliance with these OELs.

Although, O.Reg. 490/09 and the OELs do not apply to an employer on a construction project, or to their workers at the project, employers still have a responsibility to protect the health of their workers and to comply with the OHSA and other applicable regulations. Section 25(2)(h) of the OHSA requires that employers take "every precaution reasonable in the circumstances for the protection of a worker".

Other regulatory requirements (and guidelines) which apply to control of exposure to designated substances and hazardous materials are referenced in the sections below.

2.1 Asbestos

Asbestos has been widely used in buildings, both in friable applications (materials which can be crumbled, pulverized or powdered by hand pressure, when dry) such as pipe and tank insulation, sprayed-on fireproofing and acoustic texture material and in non-friable manufactured products such as floor tile, gaskets, cement board and so on. The use of asbestos in friable applications was curtailed around the mid-1970s and, as such, most buildings constructed prior to about 1975 contain some form of friable construction material with an asbestos content. The use of asbestos in certain non-friable materials continued beyond the mid-1970s.

Control of exposure to asbestos is governed in Ontario by Regulation 278/05 – *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*. Disposal of asbestos waste

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(friable and non-friable materials) is governed by Ontario Regulation 278/05 and by Ontario Regulation 347, *Waste Management – General*. O.Reg. 278/05 classifies asbestos work operations into three types (Type 1, 2 and 3), as shown in Table C-1 in Appendix C, and specifies procedures to be followed in conducting asbestos abatement work.

2.2 Lead

Lead is a heavy metal that can be found in construction materials such as paints, coatings, mortar, concrete, pipes, solder, packings, sheet metal, caulking, glazed ceramic products and cable splices. Lead has been used historically in exterior and interior paints.

The *Surface Coating Materials Regulations* (SOR/2016-193) made pursuant to the Canada Consumer Product Safety Act states that a surface coating material must not contain more than 90 mg/kg total lead. Health Canada defines a lead-containing surface coating as a paint or similar material that dries to a solid film that contains over 90 mg/kg dry weight of lead.

Information from the United States Occupational Health and Safety Administration (OSHA) suggests that the improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the permissible exposure limit. Lead concentrations as low as 90 mg/kg may present a risk to pregnant women and children⁽¹⁾.

The *National Plumbing Code* allowed lead as an acceptable material for pipes until 1975 and in solder until 1986.

The Ministry of Labour *Guideline, Lead on Construction Projects*, dated April 2011, provides guidance in the measures and procedures that should be followed when handling lead containing materials during construction projects. In the guideline, lead-containing construction operations are classified into three groups - Type 1 (low risk), Type 2 (medium risk) and Type 3 (high risk) based on presumed airborne concentrations of lead, as shown in Appendix C, Table C-2. Any operation that may expose a worker to lead that is not a Type 1, Type 2, or Type 3b operation, is classified as a Type 3a operation.

2.3 Mercury

Mercury has been used in electrical equipment such as alkaline batteries, fluorescent light bulbs (lamps), high intensity discharge (HID) lights (mercury vapour, high pressure sodium and metal halide), “silent switches” and in instruments such as thermometers, manometers and barometers, pressure gauges, float and level switches and flow meters. Mercury-containing lamps, the bulk of which are 1.22 m (four foot) fluorescent lamps contain between 7 and 40 mg of mercury each. Mercury compounds have also been

⁽¹⁾ *Lead-Containing Paints and Coatings: Preventing Exposure in the Construction Industry*. WorkSafe BC, 2011.

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used historically as additives in latex paint to protect the paint from mildew and bacteria during production and storage.

The intentional addition of mercury to Canadian-produced consumer paints for interior use was prohibited in 1991. Mercury may have remained in paints after 1991, however, as a result of impurities in the paint ingredients or cross-contamination due to other manufacturing processes. The *Surface Coating Materials Regulations* made under the *Hazardous Products Act* set a maximum total mercury concentration of 10 mg/kg (0.001 percent) for surface coating materials (including paint). This criterion level applies to the sale and importation of new surface coating materials.

Mercury-containing thermostats and silent light switches are mercury tilt switches which are small tubes with electrical contacts at one end of the tube. A mercury tilt switch is usually present when no switch is visible. Mercury switches often have the word "TOP" stamped on the upper end of the switch, which is visible after removing the cover plate. If mercury switches are to be removed, the entire switch should be removed and placed into a suitable container for storage and disposal.

Waste light tubes generated during renovations or building demolition and waste mercury from equipment must either be recycled or disposed of in accordance with the requirements of Ont. Reg. 347 - *Waste Management, General*.

Waste mercury in amounts less than 5 kg (per month) are exempt from the generator registration requirements prescribed by O.Reg. 347 – *Waste Management – General*. Waste mercury from mercury switches or gauges should, however, be properly collected and shipped to a recycling facility or disposed of as a hazardous waste. Removal of mercury-containing equipment (e.g., switches, gauges, controls, etc.) should be carried out in a manner which prevents spillage and exposure to workers.

2.4 Silica

Silica exists in several forms of which crystalline silica is of most concern with respect to potential worker exposures. Quartz is the most abundant type of crystalline silica. Some commonly used construction materials containing silica include brick, refractory brick, concrete, concrete block, cement, mortar, rock and stone, sand, fill dirt, topsoil and asphalt containing rock or stone.

The Ministry of Labour *Guideline, Silica on Construction Projects*, dated April 2011, provides guidance in controlling exposure to silica dust during construction activities. In the guideline, silica-containing construction operations are classified into three groups - Type 1 (low risk), Type 2 (medium risk) and Type 3 (high risk) based on presumed airborne concentrations of respirable crystalline silica in the form of cristobalite, tridymite, quartz and tripoli as shown in Appendix C, Table C-3.

2.5 Vinyl Chloride

Vinyl chloride vapours may be released from polyvinyl chloride (PVC) products in the event of heating or as a result of decomposition during fire. PVC is used in numerous materials that may be found in building

construction, including, for example, piping, conduits, siding, window and door frames, plastics, garden hoses, flooring and wire and cable protection.

2.6 Acrylonitrile

Acrylonitrile is used to produce nitrile-butadiene rubber, acrylonitrile-butadiene-styrene (ABS) polymers and styrene-acrylonitrile (SAN) polymers. Products made with ABS resins which may be found in buildings include telephones, bottles, packaging, refrigerator door liners, plastic pipe, building panels and shower stalls. Acrylonitrile can be released into the air by combustion of products containing ABS.

2.7 Other Designated Substances

Isocyanates are a class of chemicals used in the manufacture of certain types of plastics, foams, coatings and other products. Isocyanate-based building construction materials may include rigid foam products such as foam-core panels and spray-on insulation and paints, coatings, sealants and adhesives. Isocyanates may be inhaled if they are present in the air in the form of a vapour, a mist or a dust.

Benzene is a clear, highly flammable liquid used mainly in the manufacture of other chemicals. The commercial use of benzene as a solvent has practically been eliminated, however it continues to be used as a solvent and reactant in laboratories.

Arsenic is a heavy metal used historically in pesticides and herbicides. The primary use in building construction materials was its use in the wood preservative chromated copper arsenate (CCA). CCA was used to pressure treat lumber since the 1940's. Pressure-treated wood containing CCA is no longer being produced for use in most residential settings.

Ethylene oxide is a colourless gas at room temperature. It has been used primarily for the manufacture of other chemicals, as a fumigant and fungicide and for sterilization of hospital equipment.

Coke oven emissions are airborne contaminants emitted from coke ovens and are not a potential hazard associated with building construction materials.

2.8 Polychlorinated Biphenyls (PCBs)

The management of equipment classified as waste and containing Polychlorinated Biphenyls (PCBs) at concentrations of 50 parts per million (mg/kg) or greater is regulated by Ontario Regulation 362, *Waste Management – PCBs*. Under this regulation, PCB waste is defined as any waste material containing PCBs in concentrations of 50 mg/kg or greater. Any equipment containing PCBs at or greater than this level, such as transformers, switchgear, light ballasts and capacitors, which is removed from service due to age, failure or as a result of decommissioning, is considered to constitute a PCB waste. Although current federal legislation (effective 1 July 1980) has prohibited the manufacture and sale of new equipment containing PCBs since that time, continued operation of equipment supplied prior to this date and containing PCBs is still permitted. Handling, storage and disposition of such equipment is, however, tightly regulated and must

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JOHN T. TUCK PUBLIC SCHOOL

be managed in accordance with provincial and federal government requirements as soon as it is taken out of service or becomes unserviceable.

In most institutional, commercial facilities and in smaller industrial facilities, the primary source of equipment potentially containing PCBs is fluorescent and H.I.D. light ballasts. Small transformers may also be present. In larger industrial facilities, larger transformers and switch gear containing, or potentially containing, PCBs may also be present.

PCBs were also commonly added to industrial paints from the 1940s to the late 1970s. PCBs were added directly to the paint mixture to act as a fungicide, to increase durability and flexibility, to improve resistance to fires and to increase moisture resistance. The use of PCBs in new products was banned in Canada in the 1970s. PCB amended paints were used in speciality industrial/institutional applications prior to the 1970s including government buildings and equipment such as industrial plants, radar sites, ships as well as non-government rail cars, ships, grain bins, automobiles and appliances.

Removal of in-service equipment containing PCBs, such as fluorescent light ballasts, capacitors and transformers, is subject to the requirements of the federal *PCB Regulations* (discussed below).

The *PCB Regulations*, which came into force on 5 September 2008, were made under the *Canadian Environmental Protection Act, 1999* (CEPA 1999) with the objective of addressing the risks posed by the use, storage and release to the environment of PCBs, and to accelerate their destruction. The *PCB Regulations* set different end-of-use deadlines for equipment containing PCBs at various concentration levels.

The Regulations Amending the PCB Regulations and Repealing the Federal Mobile PCB Treatment and Destruction Regulations were published on 23 April 2014, in the Canada Gazette, Part II, and came into force on 1 January 2015. The most notable part of the amendments is the addition of an end-of-use deadline date of 31 December 2025 for specific electrical equipment located at electrical generation, transmission and distribution facilities.

When the PCB materials are classified as waste, jurisdiction falls under the Ontario Ministry of the Environment and Climate Change (MOECC) and O.Reg. 362. All remedial and PCB management work must be carried out under the terms of a Director's Instruction issued by an MOECC District Office (for quantities of PCB fluid greater than 50 litres). The PCB waste stream, regardless of quantity, must be registered with the MOECC, in accordance with O.Reg. 347, *General - Waste Management*. O.Reg. 362 applies to any equipment containing greater than 1 kg of PCBs.

2.9 Ozone-Depleting Substances (ODS) and Other Halocarbons

Ontario Regulation 463/10 – *Ozone Depleting Substances and Other Halocarbons*, applies to the use, handling and disposal of Class 1 ozone-depleting substances, including various chlorofluorocarbons (CFCs), halons and other halocarbons, Class 2 ozone-depleting substances, including various hydrochlorofluorocarbons (HCFCs) and halocarbons, and other halocarbons, including fluorocarbons (FCs) and hydrofluorocarbons (CFCs). The most significant requirements for handling of ozone-depleting substances (ODS) and other Halocarbons, which include, for example, refrigerants used in refrigeration equipment and chillers, include the following:

- certification is required for all persons testing, repairing, filling or emptying equipment containing ODS and other halocarbons;
- the discharge of a Class 1 ODS or anything that contains a Class 1 ODS to the natural environment or within a building is prohibited;
- the making, use of, selling of or transferring of a Class 1 ODS is restricted to certain conditions;
- the discharge of a solvent or sterilant that contains a Class 2 ODS is prohibited;
- the making, use of, selling of or transferring of a solvent or sterilant that contains a Class 2 ODS is restricted to certain conditions;
- fire extinguishing equipment that contains a halon may be discharged to fight fires, except fires for firefighting training purposes;
- portable fire extinguishing equipment that contains a halon may be used or stored if the extinguisher was sold for use for the first time before 1 January 1996;
- records of the servicing and repair of equipment containing ODS and other halocarbons must be prepared and maintained by the owner of the equipment; and
- equipment no longer containing ODS and other halocarbons must be posted with a notice completed by a certified person.

Ontario Regulation 347, *General – Waste Management*, has also been amended to provide for more strict control of CFCs. The requirements under the amended regulation apply primarily to the keeping of records for the receipt or recycling of CFC waste.

2.10 Mould

Moulds are forms of fungi that are found everywhere both indoors and outdoors all year round. Outdoors, moulds live in the soil, on plants and on dead and decaying matter. More than 1000 different kinds of indoor

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moulds have been found in buildings. Moulds spread and reproduce by making spores, which are all small and light-weight, able to travel through air, capable of resisting dry, adverse environmental conditions, and hence capable of surviving a long time. Moulds need moisture and nutrients to grow and their growth is stimulated by warm, damp and humid conditions.

Control of exposure to mould is required under Section 25(2)(h) of the Ontario *Occupational Health and Safety Act*, which states that employers shall take every precaution reasonable in the circumstances for the protection of workers. Recommended work practices are outlined in the following documents:

- *Mould Guidelines for the Canadian Construction Industry*. Standard Construction Document CCA 82 2004. Canadian Construction Association.
- *Mould Abatement Guidelines*. Environmental Abatement Council of Ontario. Edition 3. 2015.

3 RESULTS AND DISCUSSION

3.1 Asbestos

Arcadis reviewed a reports prepared by Arcadis for the Halton District School Board entitled *Survey of Asbestos-Containing Materials, John T. Tuck Public School, Burlington, Ontario* dated December 17, 2018 and *Survey of Asbestos-Containing Materials, John T. Tuck Public School, Burlington, Ontario* dated January 2013. Information and bulk sample analysis results obtained from these reports were utilized by Arcadis during the course of our investigation and in the preparation of this report.

During the course of our site investigation, representative bulk samples of material were collected by Arcadis staff. The samples were forwarded to EMSL Canada Inc. (EMSL) for asbestos analyses. Results of bulk sample analysis for asbestos content are provided in Table 3.1. Table 3.1 also include sample results obtained from existing reports and include results that are outside of the designated study areas, which are provided for references purposes only. Laboratory reports are provided in Appendix B. Locations of accessible asbestos-containing materials are shown on the floor plan provided in Appendix A.

Table 3.1. Summary of Results of Analyses of Bulk Samples for Asbestos Content

John T. Tuck Public School – February 25, 2021

Sample No.	Sample Location	Sample Description	Asbestos Content
1A	Room 108	1' x 1' ceiling tile – medium and small hole	None detected
1B	Room 206	1' x 1' ceiling tile – medium and small hole	None detected
1C	Room 207	1' x 1' ceiling tile – medium and small hole	None detected
2A	Room 112	interior window caulking applied to sides of window frame – sticky and grey (era 1965)	3% Chrysotile
3A	Room 206	interior window caulking applied to sides of window frame – sticky and grey (era 1960)	3% Chrysotile
4A	Room 115	interior window caulking applied to bottom of window frame – grey (era 1965)	3% Chrysotile
5A	Room 107	interior window caulking applied to bottom of window frame – grey (era 1960)	3% Chrysotile
6A	Room 112	concrete block-filler paint (era 1965)	None detected
6B	Room 211	concrete block-filler paint (era 1965)	None detected
6C	Room 213	concrete block-filler paint (era 1965)	None detected
7A	Room 112	Concrete block mortar (era 1965)	None detected
7B	Room 211	Concrete block mortar (era 1965)	None detected
7C	Room 213	Concrete block mortar (era 1965)	None detected
8A	Room 107	Exterior brick mortar (era 1960)	None detected

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Sample No.	Sample Location	Sample Description	Asbestos Content
8B	Room 108	Exterior brick mortar (era 1960)	None detected
8C	Room 108A	Exterior brick mortar (era 1960)	None detected
9A	Room 112	Exterior brick mortar (era 1965)	None detected
9B	Room 115	Exterior brick mortar (era 1965)	None detected
9C	Room 116	Exterior brick mortar (era 1965)	None detected
10A	Room 115	Exterior window caulking – grey (era 1960)	None detected
10B	Room 107	Exterior window caulking – grey (era 1960)	None detected
10C	Room 108	Exterior window caulking – grey (era 1960)	None detected
11A	Room 112	Exterior window caulking – grey (era 1965)	4% Chrysotile
1A - Tar Felt	Roof E	4 ply asphalt (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
1A - fiberboard	Roof E	4 ply asphalt (fiberboard), 1987 era	None detected
1B - fiberboard	Roof D	4 ply asphalt (fiberboard), 1987 era	None detected
1B - Tar Felt	Roof D	4 ply asphalt (Tar Felt), 1987 era	None detected
1B - Tar	Roof D	4 ply asphalt (Tar), 1987 era	None detected
1B - Insulation	Roof D	4 ply asphalt (Insulation), 1987 era	None detected
1C - fiberboard	Roof D-A	4 ply asphalt (fiberboard), 1987 era	None detected
1C - Tar Felt	Roof D-A	4 ply asphalt (Tar Felt), 1987 era	None detected
1C - Tar	Roof D-A	4 ply asphalt (Tar), 1987 era	None detected
1C - Insulation	Roof D-A	4 ply asphalt (Insulation), 1987 era	None detected
2A - Tar Felt	Roof E	2 ply asphalt (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
2A - fiberboard	Roof E	2 ply asphalt (fiberboard), 1987 era	None detected
2A - Insulation	Roof E	2 ply asphalt (Insulation), 1987 era	None detected
2B - fiberboard	Roof D	2 ply asphalt (fiberboard), 1987 era	None detected
2B - Tar Felt	Roof D	2 ply asphalt (Tar Felt), 1987 era	None detected
2B - Tar	Roof D	2 ply asphalt (Tar), 1987 era	None detected

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Sample No.	Sample Location	Sample Description	Asbestos Content
2C - fiberboard	Roof D-A	2 ply asphalt (fiberboard), 1987 era	None detected
2C - Tar Felt	Roof D-A	2 ply asphalt (Tar Felt), 1987 era	None detected
2C - Tar	Roof D-A	2 ply asphalt (Tar), 1987 era	None detected
3A	Roof E	Vapour Barrier, 1987 era	None detected (PLM) None detected (TEM)
3B – Tar	Roof D	Vapour Barrier (Tar), 1987 era	None detected
3B – Paper	Roof D	Vapour Barrier (Paper), 1987 era	None detected
3C – Tar	Roof D-A	Vapour Barrier (Tar), 1987 era	None detected
3C – Paper	Roof D-A	Vapour Barrier (Paper), 1987 era	None detected
3C – Insulation	Roof D-A	Vapour Barrier (Insulation), 1987 era	None detected
4A – Tar Felt	Roof F	4 ply asphalt (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
4A – fiberboard	Roof F	4 ply asphalt (fiberboard), 1987 era	None detected
4B - fiberboard	Roof F	4 ply asphalt (fiberboard), 1987 era	None detected
4B - Tar Felt	Roof F	4 ply asphalt (Tar Felt), 1987 era	None detected
4B - Tar	Roof F	4 ply asphalt (Tar), 1987 era	None detected
4C - fiberboard	Roof F	4 ply asphalt (fiberboard), 1987 era	None detected
4C - Tar Felt	Roof F	4 ply asphalt (Tar Felt), 1987 era	None detected
4C - Tar	Roof F	4 ply asphalt (Tar), 1987 era	None detected
5A – Tar Felt	Roof F	2 ply asphalt (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
5A – Fiberboard	Roof F	2 ply asphalt (Fiberboard), 1987 era	None detected
5B - Fiberboard	Roof F	2 ply asphalt (Fiberboard), 1987 era	None detected
5B - Tar Felt	Roof F	2 ply asphalt (Tar Felt), 1987 era	None detected
5B - Tar	Roof F	2 ply asphalt (Tar), 1987 era	None detected

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Sample No.	Sample Location	Sample Description	Asbestos Content
5C - Fiberboard	Roof F	2 ply asphalt (Fiberboard), 1987 era	None detected
5C - Tar Felt	Roof F	2 ply asphalt (Tar Felt), 1987 era	None detected
5C - Tar	Roof F	2 ply asphalt (Tar), 1987 era	None detected
6A – Tar Felt	Roof F	2 ply asphalt vapour barrier (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
6A – Insulation	Roof F	2 ply asphalt vapour barrier (Insulation), 1987 era	None detected
6B - Tar	Roof F	2 ply asphalt vapour barrier (Tar), 1987 era	None detected
6B – Tar Felt	Roof F	2 ply asphalt vapour barrier (Tar Felt), 1987 era	None detected
6B – Insulation	Roof F	2 ply asphalt vapour barrier (Insulation), 1987 era	None detected
6B C Tar	Roof F	2 ply asphalt vapour barrier (Tar), 1987 era	None detected
6C – Tar Felt	Roof F	2 ply asphalt vapour barrier (Tar Felt), 1987 era	None detected
6C – Insulation	Roof F	2 ply asphalt vapour barrier (Insulation), 1987 era	None detected
7A	Roof C	4 ply asphalt vapour barrier, 1992 era	None detected (PLM) None detected (TEM)
7B - Tar	Roof C	4 ply asphalt vapour barrier (Tar), 1992 era	None detected
7B – Tar Felt	Roof C	4 ply asphalt vapour barrier (Tar Felt), 1992 era	None detected
7C - Tar	Roof C	4 ply asphalt vapour barrier (Tar), 1992 era	None detected
7C – Tar Felt	Roof C	4 ply asphalt vapour barrier (Tar Felt), 1992 era	None detected
7C - Fiberboard	Roof C	4 ply asphalt vapour barrier (Fiberboard), 1992 era	None detected
8A – Tar Felt	Roof C	2 ply asphalt (Tar Felt), 1992 era	None detected (PLM) None detected (TEM)
8A - Tar	Roof C	2 ply asphalt (Tar), 1992 era	None detected (PLM) None detected (TEM)
8A - Fiberboard	Roof C	2 ply asphalt (Fiberboard), 1992 era	None detected
8B – Tar Felt	Roof C	2 ply asphalt (Tar Felt), 1992 era	None detected
8B - Tar	Roof C	2 ply asphalt (Tar), 1992 era	None detected

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Sample No.	Sample Location	Sample Description	Asbestos Content
8B - Fiberboard	Roof C	2 ply asphalt (Fiberboard), 1992 era	None detected
8C – Insulation	Roof C	2 ply asphalt (Insulation), 1992 era	None detected
8C – Tar Paper	Roof C	2 ply asphalt (Tar Paper), 1992 era	None detected
8C – Tar	Roof C	2 ply asphalt (Tar), 1992 era	None detected
8C - Tar Felt	Roof C	2 ply asphalt (Tar Felt), 1992 era	None detected
8C - Fiberboard	Roof C	2 ply asphalt (Fiberboard), 1992 era	None detected
9A	Roof C	Vapour barrier, 1992 era	None detected (PLM) None detected (TEM)
9B – Insulation	Roof C	Vapour barrier (Insulation), 1992 era	None detected
9B – Tar	Roof C	Vapour barrier (Tar), 1992 era	None detected
9B – Paper	Roof C	Vapour barrier (Paper), 1992 era	None detected
9C – Tar	Roof C	Vapour barrier (Tar), 1992 era	None detected
9C – Paper	Roof C	Vapour barrier (Paper), 1992 era	None detected
10A – Tar Felt	Roof D1	4 ply asphalt (Tar Felt), 1987 era	None detected (PLM) None detected (TEM)
10A – Fiberboard	Roof D1	4 ply asphalt (Fiberboard), 1987 era	None detected
1A	Room 217	Concrete block mortar	None Detected ⁽¹⁾
1B	Room 217	Concrete block mortar	None Detected ⁽¹⁾
1C	Room 217	Concrete block mortar	None Detected ⁽¹⁾
2A	Room 217	Concrete block filler paint	None Detected ⁽¹⁾
2B	Room 217	Concrete block filler paint	None Detected ⁽¹⁾
2C	Room 217	Concrete block filler paint	None Detected ⁽¹⁾
4A	Room 217	Black mastic associated with 9"x9" ACM vinyl floor tile	4% Chrysotile ^(1,2)
1A	Room 220	Mastic – black in colour under 12" x 12" vinyl tile beige with brown streaks	1% Chrysotile ^(1,2)
2A	Room 220	12" x 12" vinyl floor tile – beige in colour with brown streaks	None Detected (TEM) ⁽¹⁾ None Detected (PLM) ⁽¹⁾

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Sample No.	Sample Location	Sample Description	Asbestos Content
2B	Room 220	12" x 12" vinyl floor tile – beige in colour with brown streaks	None Detected ⁽¹⁾
2C	Room 220	12" x 12" vinyl floor tile – beige in colour with brown streaks	None Detected ⁽¹⁾
11A	Room 110	Mortar – grey in colour from interior concrete block wall	None Detected ⁽¹⁾
11B	Room 111	Mortar – grey in colour from interior concrete block wall	None Detected ⁽¹⁾
11C	Room 210	Mortar – grey in colour from interior concrete block wall	None Detected ⁽¹⁾
3A	Room 205	2"x 4" ceiling tile – pinhole random fissure	None Detected ⁽¹⁾
3B	Corr. 200	2"x 4" ceiling tile – pinhole random fissure	None Detected ⁽¹⁾
3C	Room 205	2"x 4" ceiling tile – pinhole random fissure	None Detected ⁽¹⁾
4A	Room 211	2"x 4" ceiling tile – pinhole shallow fissure	15% Amosite ^(1,2)
5A	Room 201	Mortar	None Detected (TEM) ⁽¹⁾
5B	Room 216	Mortar	None Detected ⁽¹⁾
5C	Room 218	Mortar	None Detected ⁽¹⁾
1-A	Room 107	Granular grey/black vermiculite insulation located inside concrete block wall cavity	Libby Amphibole ^(1,3)
3-1	Room 101C	Drywall joint compound	None Detected ⁽¹⁾
3-2	Room 104H	Drywall joint compound	None Detected ⁽¹⁾
3-3	Room 101A	Drywall joint compound	None Detected ⁽¹⁾
4-1	Room 121A	Drywall joint compound	None Detected ⁽¹⁾
4-2	Room 122A	Drywall joint compound	None Detected ⁽¹⁾
4-3	Corridor 139	Drywall joint compound	None Detected ⁽¹⁾
5-1	Room 138	Drywall joint compound	None Detected ⁽¹⁾
5-2	Room 129	Drywall joint compound	None Detected ⁽¹⁾
5-3	Room 130	Drywall joint compound	None Detected ⁽¹⁾
Rm 122a	Room 122A	9" x 9" vinyl floor tiles	8.3% Chrysotile ⁽¹⁾
Rm 116	Room 116	9" x 9" vinyl floor tiles	10.8% Chrysotile ⁽¹⁾
Rm 214	Room 214	9" x 9" vinyl floor tiles	7.8% Chrysotile ⁽¹⁾
106-TH-6A	Room 106	Black paper on "anti-sweat" pipe straight insulation	1.2% Chrysotile ^(1,2)
EXT-CP-8	Exterior	Cement board on exterior soffit	30.5% Chrysotile ⁽¹⁾
EXT-PL-2A	Outside Corridor 138	Plaster on Exterior soffit – white colour	None Detected ⁽¹⁾

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Sample No.	Sample Location	Sample Description	Asbestos Content
EXT-PL-2B	Outside Corridor 138	Plaster on Exterior soffit – white colour	None Detected ⁽¹⁾
EXT-PL-2C	Outside Corridor 138	Plaster on Exterior soffit – white colour	None Detected ⁽¹⁾
1A	Exterior Wall	Brick Mortar (1965)	None Detected ⁽¹⁾
1B	Exterior Wall	Brick Mortar (1965)	None Detected ⁽¹⁾
1C	Exterior Wall	Brick Mortar (1965)	None Detected ⁽¹⁾
2A	Room 221	Mortar- Concrete Block Wall (1965)	None Detected ⁽¹⁾
2B	Room 126	Mortar- Concrete Block Wall (1965)	None Detected ⁽¹⁾
2C	Room 224	Mortar- Concrete Block Wall (1965)	None Detected ⁽¹⁾
3A	Room 126	Mortar- Ceramic Block Wall (1965)	None Detected ⁽¹⁾
3B	Room 127	Mortar- Ceramic Block Wall (1965)	None Detected ⁽¹⁾
3C	Room 127	Mortar- Ceramic Block Wall (1965)	None Detected ⁽¹⁾
4A	Room 114	Paint – Concrete Block Wall (1960)	3% Chrysotile ⁽¹⁾
5A	Room 126	Paint – Concrete Block Wall (1965)	None Detected ⁽¹⁾
5B	Room 224	Paint – Concrete Block Wall (1965)	None Detected ⁽¹⁾
5C	Room 224	Paint – Concrete Block Wall (1965)	None Detected ⁽¹⁾
11A	Room 101A	12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected (PLM) ^(1,2) None Detected (TEM) ^(1,2)
11B	Room 101	12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected ^(1,2)
11C	Room 101	12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected ^(1,2)
12A	Room 101A	Mastic (yellow) – under 12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected ^(1,2)
12B	Room 101	Mastic (yellow) – under 12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected ^(1,2)
12C	Room 101	Mastic (yellow) – under 12"x12" vinyl floor tiles – grey with light and dark flecks	None Detected ^(1,2)
-	-	Thermal insulation on pipe fittings	40% Chrysotile ⁽⁴⁾
-	-	Thermal insulation on pipe straights	28% to 36% Chrysotile ⁽⁴⁾

NOTES:

- (1) Sample results derived from a report prepared by Arcadis for the Halton District School Board entitled *Survey of Asbestos-Containing Materials, JT Tuck Public School, 3365 Spruce Avenue, Burlington, Ontario* dated December 17, 2018.
- (2) Material collected in the area have since been removed and are provided here for references purposes only.
- (3) Libby Amphibole vermiculite is an asbestos-containing material.

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(4) Sample results derived from a report prepared by DCS for the Board entitled *Survey and Assessment of Asbestos-Containing Materials, John T. Tuck Public School, Burlington, Ontario* dated January 2013.

Bulk samples were analyzed by Polarized Light Microscopy (PLM) analysis, except where "TEM" is noted, in which case Transmission Electron Microscopy analysis was also performed.

< = less than.

Chrysotile = Chrysotile asbestos.

Amosite = Amosite asbestos.

Determination of the locations of asbestos-containing material was made based on the review of existing information, results of bulk sample analysis, visual observations and physical characteristics of the applications as well as our knowledge of the uses of asbestos in building materials.

Based on visual observations and results of laboratory analyses of samples collected by Arcadis Canada Inc., the following asbestos-containing materials were found to be present in the designated study areas:

- 9" x 9" vinyl floor tiles in Rooms 112, 115, 116, 211, 212, 213 and 214;
- Mastic associated with vinyl floor tiles (9" x 9") in Rooms 211, 212, 213 and 214;
- Mastic associated with non-asbestos-containing vinyl floor tiles (12" x 12") in Rooms 107 and 108;
- Caulking applied to interior window frames in Rooms 107, 108, 110, 111, 112, 115, 116, 205, 206, 207, 209, 210, 211, 212, 213, 214 and Corridor 200;
- Caulking applied to exterior window frames in Rooms 112, 115, 116, 211, 212, 213 and 214;
- Concrete block-filler paint applied to concrete block walls in Rooms 101, 107, 107A, 108, 108A, 110, 111, 205, 206, 207, 209, 210, and Corridor 200 and in all other areas in the 1960 construction era;
- Vermiculite insulation inside cavities in exterior concrete block walls in all areas in the 1960 construction era;
- Thermal insulation applied to piping above ceilings in Room 107, 107A, 108, 108A and 116;
- Thermal insulation applied to piping below ceilings in Room 111;
- Acoustic ceiling tiles (2' x 4') in Rooms 115 and 116; and
- Cement board on soffits on exterior overhangs outside Rooms 19, 107A, 107B, 108A, 124, 200, 218, 219 and 221.

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It should be noted that thermal insulation, vinyl floor tiles, vinyl floor tile mastics, acoustic ceiling tiles and asbestos cement board on exterior soffits all containing asbestos, observed in various locations throughout the designated study areas, should not be affected by the proposed renovation work.

Asbestos-containing thermal insulation applied to pipe fittings is a white-coloured cementitious material. Asbestos-containing thermal insulation applied to pipe straights is “Air-Cell” insulation or “Anti-sweat” insulation. “Aircell” is a trade name for a grey-coloured corrugated paper-like type of pipe insulation, usually found on heating and domestic hot water piping. “Anti-sweat” insulation is a layered paper-like material, typically brown in colour that may contain intermittent layers of black tar-like paper and/or intermittent layers of a white paper-like material, usually found on domestic cold water lines and sanitary and rain water piping.

Glass fibre insulation is readily visually distinguishable (typically yellow in colour) from asbestos-containing insulation materials and was, therefore, not tested for asbestos content.

Vinyl floor tiles, floor tile mastics, caulking, cement board and paints are non-friable materials. The removal, alteration and/or disturbance of these non-friable asbestos-containing materials can be performed as a Type 1 operation as specified in O. Reg. 278/05 if the material is wetted and the work is done only using non-powered, hand-held tools (see Table C-1 in Appendix C). If the removal, alteration and/or disturbance work is done using power tools that are attached to dust-collecting devices equipped with HEPA filters, then the work is classified as Type 2. If the power tools do not have HEPA filtered dust collecting devices, then the work is Type 3.

Thermal insulation is a friable material. The removal, alteration and/or disturbance of less than 1 m² of friable asbestos-containing materials is classified as a Type 2 enclosure operation as specified in O.Reg. 278/05. The removal, alteration and/or disturbance of more than 1 m² of friable asbestos-containing materials is classified as a Type 3 operation.

The removal, alteration and/or disturbance of less than 7.5 m² of asbestos-containing tiles is a Type 1 operation (if the tiles are removed without being broken, cut, etc.). The removal, alteration and/or disturbance of 7.5 m² or more asbestos-containing ceiling tiles is a Type 2 operation (if the tiles are removed without being broken, cut, etc.).

Asbestos may also be present in materials which were not sampled during the course of the asbestos survey carried out by Arcadis, including, but not limited to, areas outside the designated study areas, fire doors, mastics or cementitious levelling compound under vinyl flooring, acoustic ceiling tile adhesive, grout, caulking, gaskets in piping, cementitious mortar on the back side of ceramic tile applications, internal components of boilers, components of electrical equipment (e.g. electric wiring insulation, non-metallic sheathed cable, electrical panel partitions, arc chutes, high-grade electrical paper, etc.), asphaltic pavement, etc., and/or in locations that are presently inaccessible (e.g., in pipe chases, behind walls, above suspended gypsum board or plaster ceilings, and below carpets). Confirmatory testing of any such materials could be undertaken as the need arises (i.e., at the time of renovations, modifications or demolition) or the materials can be assumed to contain asbestos based on findings in adjacent areas.

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If any materials which may contain asbestos and which were not tested during the course of the designated substances and hazardous materials survey are discovered during any construction activities, the work shall not proceed until such time as the required notifications have been made and an appropriate course of action is determined.

3.2 Lead

During the course of our site investigation, a bulk sample of the predominant paint observed in the designated study areas was collected by Arcadis staff. The sample was forwarded to Bureau Veritas Laboratories for lead analyses. Results of bulk sample analysis for lead content are provided in Table 3.2. The laboratory report is provided in Appendix B.

Table 3.2. Summary of Results of Analyses of Bulk Samples for Lead Content

John T Tuck Public School – February 25, 2021

Sample No.	Sample Location	Sample Description	Lead Content
P-1	Room 112	Beige paint on concrete block	180 mg / Kg

NOTE:

< = less than.

mg/Kg = milligrams lead per kilogram paint.

1 mg/Kg - 1 part per million (ppm).

Lead was detected at a level above 90 µg/g (Surface Coating Materials Regulations criterion value) in the sample of paint collected.

Lead may also be present in lead pipe, mortar, glazing on ceramic tiles, in the solder on the seals of bell joints of any cast iron drainpipe and in the solder on the sweated-on joints between copper pipe and fittings.

The Ministry of Labour *Guideline – Lead on Construction Projects*, dated April 2011, provides guidance in the measures and procedures that should be followed when handling lead containing materials during construction projects. In the guideline, lead-containing construction operations are classified into three groups - Type 1 (low risk), Type 2 (medium risk) and Type 3 (high risk) based on presumed airborne concentrations of lead, as shown in Appendix C, Table C-2. Any operation that may expose a worker to lead that is not a Type 1, Type 2, or Type 3b operation, is classified as a Type 3a operation.

In addition, the *EACO Lead Abatement Guidelines, 2014 — Edition 1*, Environmental Abatement Council of Ontario, also provides guidance and recommended work practices.

3.3 Mercury

During the course of our site investigation, fluorescent lights were identified in various locations throughout the designated study area. HID lights were observed in Large Gymnasium 141. Mercury should be assumed to be present as a gas in all fluorescent light tubes and HID bulbs and in all paint applications, albeit at low levels. The fluorescent light tubes and HID bulbs should be recycled for mercury, if the lights are removed.

Proper procedures for removing and handling mercury-containing fluorescent light tubes and HID bulbs typically involve:

- ensuring that electrical power to light fixtures has been disconnected and locked out;
- taking all necessary precautions to ensure that fluorescent lamp tubes and HID bulbs are removed in a manner that prevents breakage; and
- transporting fluorescent lamp tubes and HID bulbs to a licensed processing location for separation and recovery of mercury.

The measures and procedures outlined in the MOL *Guideline, Lead on Construction Projects* for control of potential exposure to lead in paint during construction activities will also serve to control potential exposure to any mercury in paint.

3.4 Silica

Materials observed in the designated study area which should be considered to contain silica included gypsum board, drywall joint compound, concrete, concrete mortar, cement block walls and vinyl floor tiles.

Silica can also be assumed to be present in any gravel ballast on roofs and will also be found in asphalt roofing materials if rock or stone are present in the asphalt.

The Ministry of Labour *Guideline, Silica on Construction Projects*, April 2011, provides guidance in controlling exposure to silica dust during construction activities. In the guideline, silica-containing construction operations are classified into three groups - Type 1 (low risk), Type 2 (medium risk) and Type 3 (high risk) based on presumed airborne concentrations of silica, as shown in Appendix C, Table C-3.

Additional precautionary measures should also be implemented for certain types of materials (e.g., plaster and texture coat materials, including non-asbestos applications, concrete block, etc.). For minor disturbances such as drilling, a HEPA-filtered attachment should be used. For removal of more than a minor amount of material, enclosures should be constructed for dust control and separation of the work area from adjacent areas.

3.5 Vinyl Chloride

As mentioned in Section 2.5 above, vinyl chloride would only be a potential exposure concern in the event of combustion of PVC products.

3.6 Acrylonitrile

As mentioned in Section 2.6 above, acrylonitrile would only be a potential exposure concern in the event of combustion of ABS products.

3.7 Other Designated Substances

No other designated substances (benzene, isocyanates, arsenic, ethylene oxide and coke oven emissions) were observed to be present in the designated study area, and none would be expected to be encountered in any building materials in a form that would represent an exposure concern. Arsenic may be present at low levels in paint applications. The measures and procedures outlined in the *MOL Guideline, Lead on Construction Projects* for control of potential exposure to lead in paint during construction activities will also serve to control potential exposure to any arsenic (or mercury) in paint.

3.8 Polychlorinated Biphenyls (PCBs)

Fluorescent lights were observed in the designated study area during the course of our site investigation. Light ballasts, such as those associated with the type of fluorescent lights (T8s) observed in the designated study area, are usually an electronic-type which do not contain PCBs, however, this would be confirmed by an electrician at the time of dismantling of the lights. HID lights were observed in Large Gymnasium 141. Light ballasts, such as those associated with HID lights may contain PCBs. Inspection of product codes and date codes on the ballasts can be used to determine the likely presence or absence of PCBs.

3.9 Ozone-Depleting Substances (ODS) and Other Halocarbons

During the course of the site investigations, ceiling mounted air conditioning units observed in Rooms 205 and 206 may contain refrigerants that are ODS

If any ODS-containing equipment is to be removed then they must be handled in the following manner:

- any equipment designated for disposal as scrap must be drained of its contents by a licensed technician and equipped with a label indicating that the equipment no longer contains any refrigerant. The specific requirements for information on the label, as specified in the regulation, must be adhered to;
- equipment designated for relocation to another facility owned by the Halton District School Board must be drained and labelled, as above; and
- any equipment that is drained to facilitate relocation to another facility owned by the Halton District School Board must be tested for leaks prior to re-filling. The equipment must be re-filled within six months of the leak test.

3.10 Mould

Readily evident mould was not observed during the course of the site investigation. The inspection of mould was limited to visual observations of readily-accessible surfaces and did not include intrusive inspections of wall cavities. During renovations or interior demolition work, any mould-impacted materials uncovered/discovered should be remediated following the measures and procedures outlined in the *Canadian Construction Association Standard Construction Document CCA-82 2004 - Mould Guidelines for the Canadian Construction Industry*.

4 USE AND LIMITATIONS OF THIS PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY REPORT

This report, prepared for the Halton District School Board, does not provide certification or warranty, expressed or implied, that the investigation conducted by Arcadis Canada Inc. identified all designated substances (as defined in the Ontario *Occupational Health and Safety Act*) in the designated study area at the subject facility. The work undertaken by Arcadis Canada Inc. was directed to provide information on the presence of designated substances in building construction materials based on review of existing information, visual investigation of readily accessible areas in the designated study area of the building and on the results of laboratory analysis of a limited number of bulk samples of material for asbestos content and laboratory analysis of a limited number of paint samples for lead content. The survey did not include for identification of asbestos in process materials, equipment (including electrical equipment and wiring), furniture (e.g., chairs, table tops, chalkboards, etc.), nor material outside of the building (e.g., asphaltic pavement).

The material in this report reflects Arcadis Canada Inc.'s best judgment in light of the information available at the time of the investigation, which was performed on February 25, 2021.

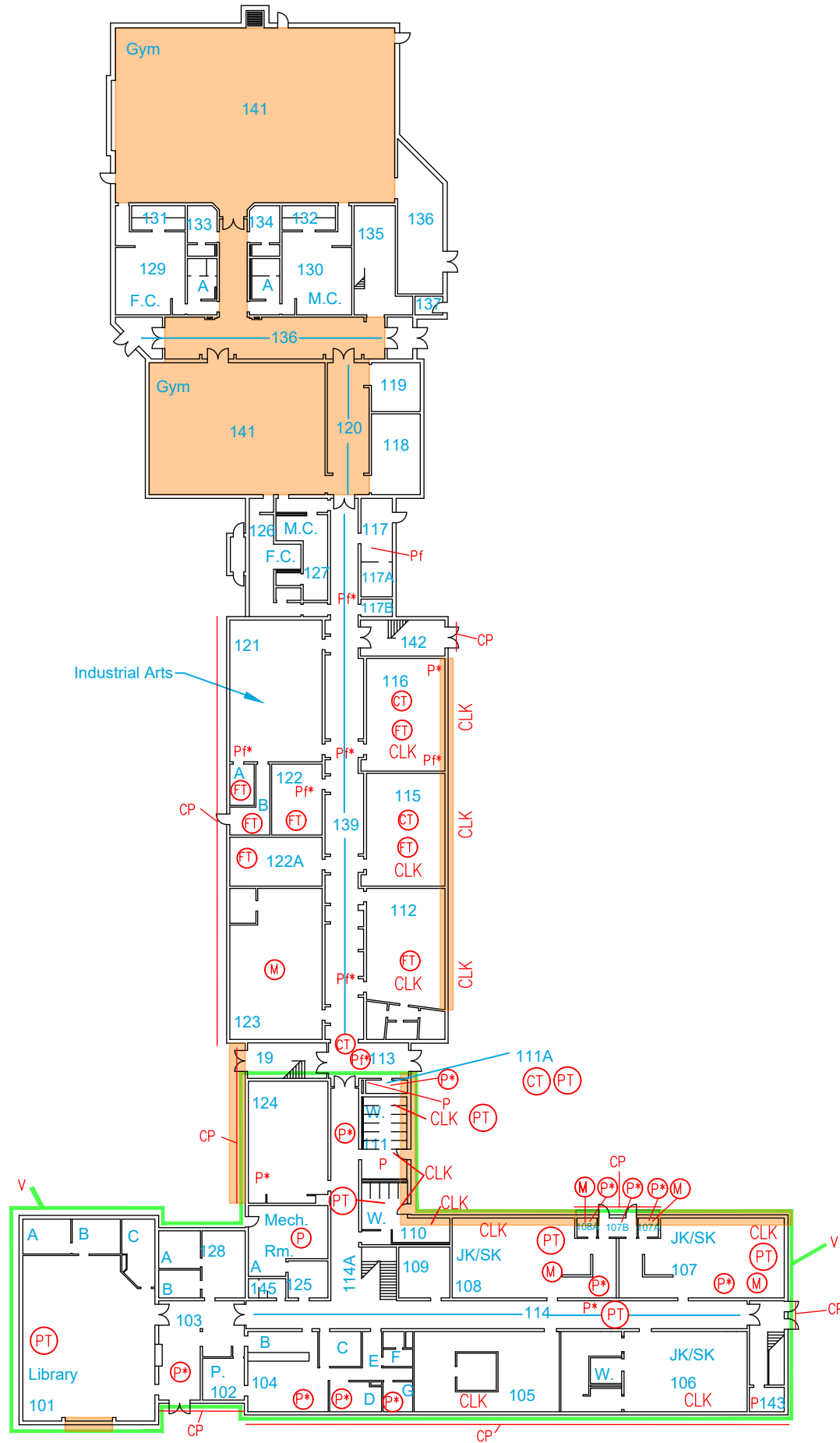
This report is not intended to be used as a scope of work or technical specification for remediation of designated substances or hazardous materials.

This report was prepared by Arcadis Canada Inc. for the Halton District School Board. Any use which any other party makes of the report, or reliance on, or decisions to be based on it, is the responsibility of such parties.

APPENDIX A

Floor Plans





ASBESTOS VERMICULITE INSULATION INSIDE OPEN CELLS IN EXTERIOR CONCRETE BLOCK WALLS IS CONFIRMED AND/OR ASSUMED TO BE PRESENT IN THE 1960 ERA OF CONSTRUCTION.

ASBESTOS PAINT IS PRESENT ON ALL CONCRETE BLOCK WALLS IN THE 1960 ERA OF CONSTRUCTION.

- LEGEND:**
- 123 FUNCTIONAL SPACE
 - THROUGHOUT FUNCTIONAL SPACE
 - * ABOVE CEILING ASSEMBLY
 - P ASBESTOS ON PIPES (STRAIGHTS AND FITTINGS) (FRIABLE)
 - Pf ASBESTOS ON PIPE FITTINGS ONLY (FRIABLE)
 - CT ASBESTOS CEILING TILE (NON-FRIABLE)
 - FT ASBESTOS FLOOR TILE (NON-FRIABLE)
 - CP ASBESTOS CEMENT PRODUCT (NON-FRIABLE)
 - M ASBESTOS FLOOR TILE MASTIC(NON-FRIABLE)
 - CLK ASBESTOS CAULKING (NON-FRIABLE)
 - PT ASBESTOS PAINT ON CONCRETE BLOCK
 - V ASBESTOS VERMICULITE INSULATION (FRIABLE)
 - STUDY AREA

NOTE:

INTERIORS OF ALL FIRE DOORS ARE ASSUMED TO CONTAIN ASBESTOS.

ARCADIS

HALTON DISTRICT SCHOOL BOARD

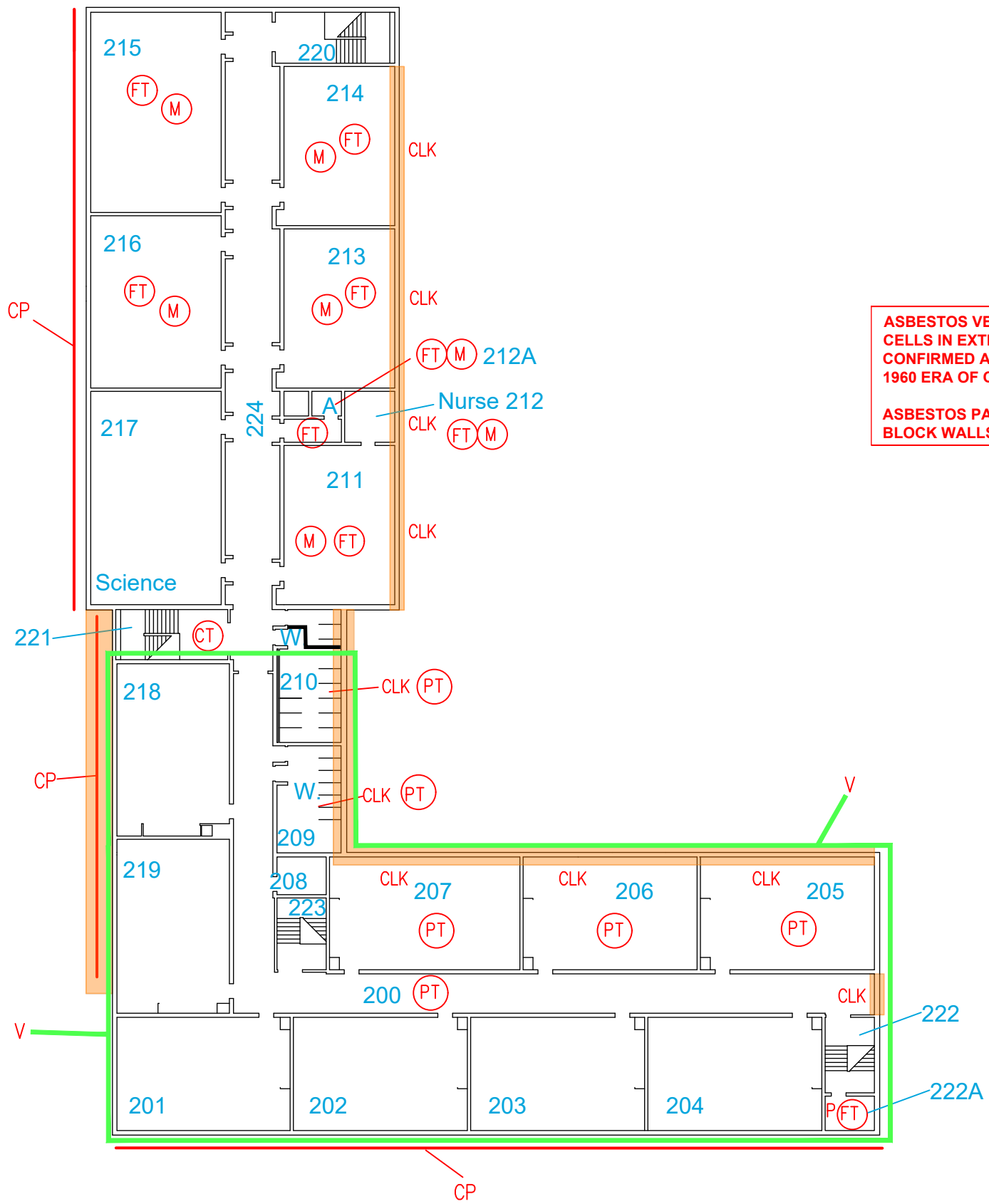
PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

LOCATIONS OF ASBESTOS-CONTAINING MATERIALS AND STUDY AREAS

J.T TUCK PUBLIC SCHOOL
3365 SPRUCE AVENUE, BURLINGTON, ON

FIRST FLOOR

Drawn By: M.S	Approved By: DK	Project No: 30065534
Date: MAR 2021	Scale: AS SHOWN	Drawing No: 30065534-1



- LEGEND:**
- 217 FUNCTIONAL SPACE
 - THROUGHOUT FUNCTIONAL SPACE
 - * ABOVE CEILING ASSEMBLY
 - P ASBESTOS ON PIPES (STRAIGHTS AND FITTINGS) (FRIABLE)
 - Pf ASBESTOS ON PIPE FITTINGS ONLY (FRIABLE)
 - CT ASBESTOS CEILING TILE (NON-FRIABLE)
 - FT ASBESTOS FLOOR TILE (NON-FRIABLE)
 - CP ASBESTOS CEMENT PRODUCT (NON-FRIABLE)
 - M ASBESTOS FLOOR TILE MASTIC(NON-FRIABLE)
 - CLK ASBESTOS CAULKING (NON-FRIABLE)
 - PT ASBESTOS PAINT ON CONCRETE BLOCK
 - V ASBESTOS VERMICULITE INSULATION (FRIABLE)
 - Study Area

NOTE:
INTERIORS OF ALL FIRE DOORS ARE ASSUMED TO CONTAIN ASBESTOS.



HALTON DISTRICT SCHOOL BOARD

PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

LOCATIONS OF ASBESTOS-CONTAINING MATERIALS AND STUDY AREAS

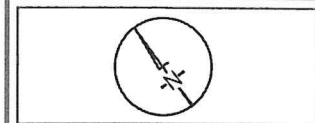
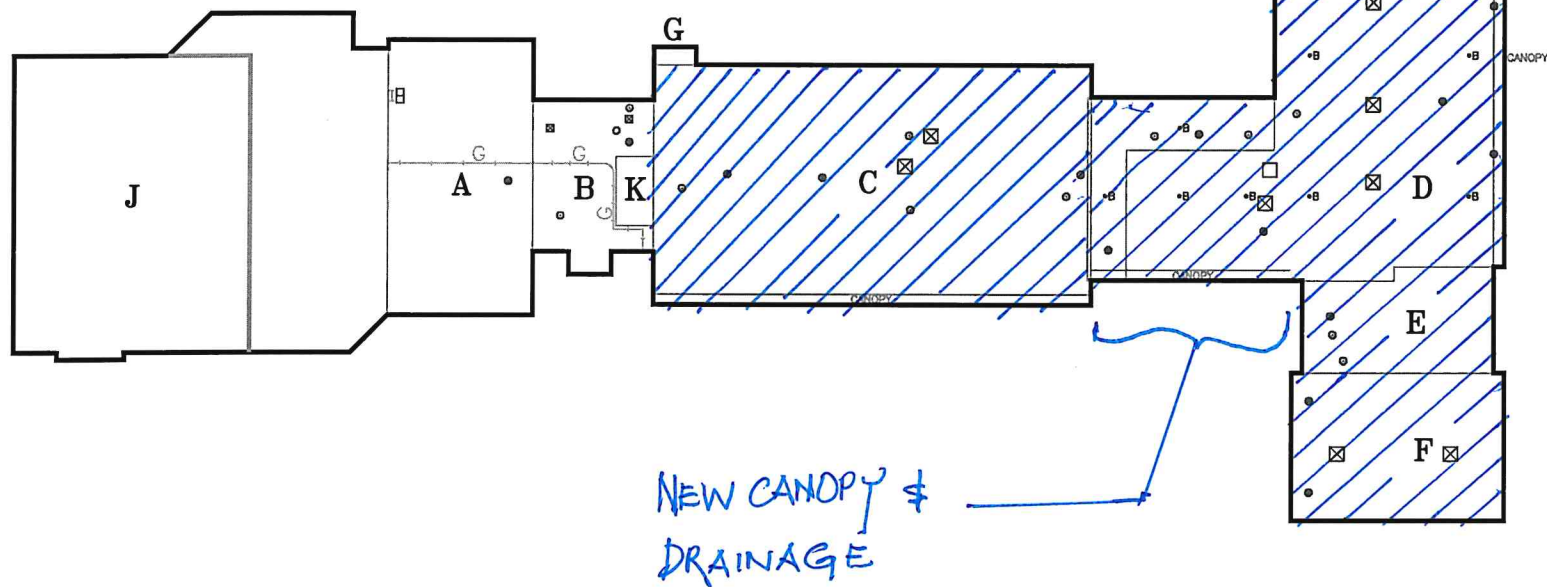
J.T TUCK PUBLIC SCHOOL
3365 SPRUCE AVENUE, BURLINGTON, ON

SECOND FLOOR PLAN

Drawn By: M.S	Approved By: DK	Project No: 30065534
Date: MAR 2021	Scale: AS SHOWN	Drawing No: 30065534-2

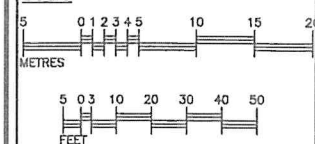
SECTION	AREA (SQ. FT.)	YEAR REPLACED	CONTRACTOR
A	3198	1992	E-D ROOFING
B	1330	1977/ 2011	CMW
C	8432	1992	E-D ROOFING
D	13080	1987	IRS
E	1516	1987	IRS
F	2520	1987	IRS
G	60	-	-
H	125	1987	IRS
I	96	1987	IRS
J	9378	1987	-
K	210	2018	-
TOTAL	39945		

2021 ROOF REPLACEMENT:
 SECTIONS: C, D, E, F
 & WEST CANOPY (D)



GENERAL NOTES

Scale



G GAS PIPING

SYMBOLS

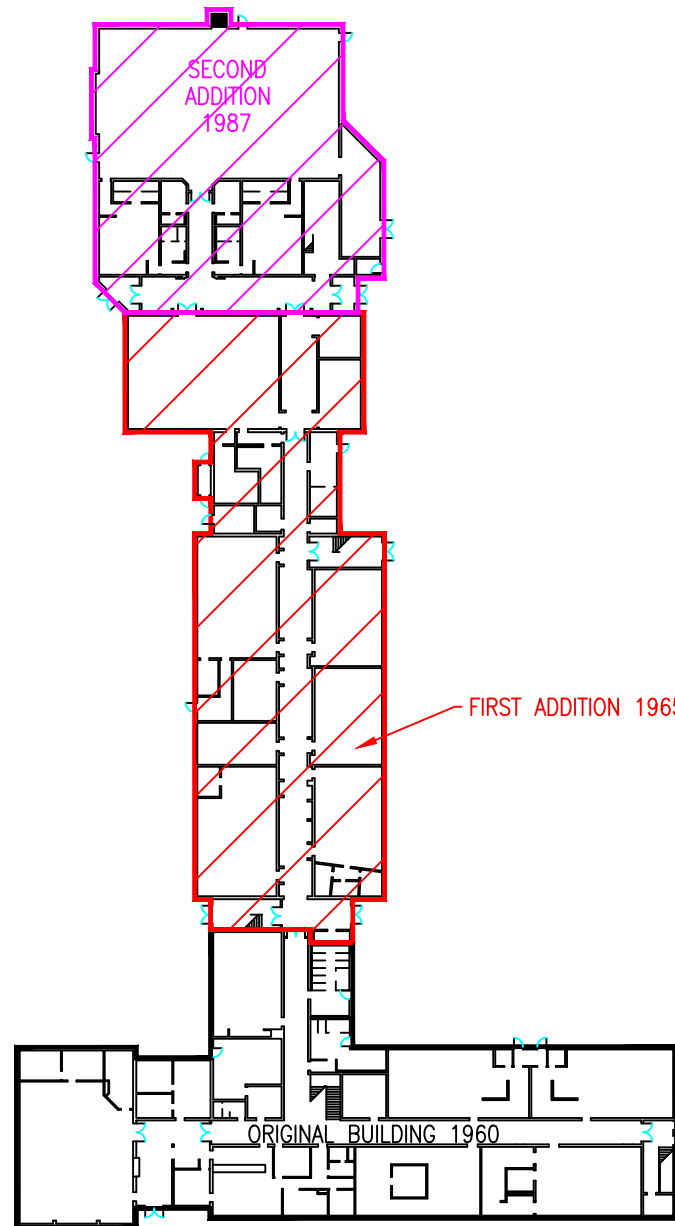
● ROOF DRAIN	┌─┐ LADDER
○ PLUMBING STACK	└─┘ PITCH PAN
○ SLEEVE & COLLAR	▢ DOWNSPOUT
⊠ EQUIPMENT CURB	▢ SCUPPER
▢ SQUARE TO ROUND	→ SLOPE
▢ ROOF HATCH	┌─┐ EXPANSION JOINT
▢ SKYLIGHT	┌─┐ CONTROL JOINT
▢ CHIMNEY	✕ CUT TEST
U UNROOFED EQUIPMENT	○ CAMERA LOCATION

No.	REVISION	DATE

TESTBURN
 TESTBURN SCIENCE ENGINEERS LTD.
 10394 STEELES AVE.
 RICHMOND HILL, ONTARIO L4B 1E9
 (905) 878-1282 office (905) 878-2147 fax
 info@testburn.com

HALTON DISTRICT SCHOOL BOARD
 JOHN T. TUCK P.S.
 BURLINGTON, ONTARIO

PROJECT:	NUMBER:
DATE: JULY, 1997	1
SCALE: 1/64"=1'-0"	
DRAWN BY: JOHN T. TUCK	
FILE NAME: JOHN T. TUCK	



Scale



DATE	DESCRIPTION
19 SEP 2018	REVISED
21 OCT 2011	REVISED

19 SEP 2018	REVISED
21 OCT 2011	REVISED



John T. Tuck Public School

3845 SPRUCE AVENUE
BURLINGTON, ONTARIO

DATE	25 MARCH 2019
PROJECT	19 SEP 2018
DESIGN	JTC-B
SCALE	1"=40'-0"
DATE	21 OCT 2011
YEAR	1980
AREA NO. PL.	55798 (5184sq')
OLD FILE NAME	JTTPS

DATE	25 MARCH 2019
PROJECT	19 SEP 2018
DESIGN	JTC-B
SCALE	1"=40'-0"
DATE	21 OCT 2011
YEAR	1980
AREA NO. PL.	55798 (5184sq')
OLD FILE NAME	JTTPS

DATE	25 MARCH 2019
PROJECT	19 SEP 2018
DESIGN	JTC-B
SCALE	1"=40'-0"
DATE	21 OCT 2011
YEAR	1980
AREA NO. PL.	55798 (5184sq')
OLD FILE NAME	JTTPS

APPENDIX B

Laboratory Reports





EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3
 Phone/Fax: (289) 997-4602 / (289) 997-4607
<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552103293
 Customer ID: 55DCSL97
 Customer PO: 30065534
 Project ID:

Attn: Dwayne Kellyman
 ARCADIS Canada Inc.
 121 Granton Drive
 Unit 12
 Richmond Hill, ON L4B 3N4

Phone: (905) 882-5984
Fax: (905) 882-8962
Collected:
Received: 3/03/2021
Analyzed: 3/10/2021

Proj: JT Tuck PS / 30065534

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 1A **Lab Sample ID:** 552103293-0001

Sample Description: Room 108/1' x 1' ceiling tile – medium and small hole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Brown	90.0%	10.0%	None Detected	

Client Sample ID: 1B **Lab Sample ID:** 552103293-0002

Sample Description: Room 206/1' x 1' ceiling tile – medium and small hole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Brown	90.0%	10.0%	None Detected	

Client Sample ID: 1C **Lab Sample ID:** 552103293-0003

Sample Description: Room 207/1' x 1' ceiling tile – medium and small hole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Brown/White	90.0%	10.0%	None Detected	

Client Sample ID: 2A **Lab Sample ID:** 552103293-0004

Sample Description: Room 112/interior window caulking applied to sides of window frame – sticky and grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	97.0%	3% Chrysotile	

Client Sample ID: 2B **Lab Sample ID:** 552103293-0005

Sample Description: Room 115/interior window caulking applied to sides of window frame – sticky and grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)

Client Sample ID: 2C **Lab Sample ID:** 552103293-0006

Sample Description: Room 116/interior window caulking applied to sides of window frame – sticky and grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)

Client Sample ID: 3A **Lab Sample ID:** 552103293-0007

Sample Description: Room 206/interior window caulking applied to sides of window frame – sticky and grey (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	97.0%	3% Chrysotile	



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<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552103293
 Customer ID: 55DCSL97
 Customer PO: 30065534
 Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 3B		Lab Sample ID: 552103293-0008				
Sample Description: Room 207/interior window caulking applied to sides of window frame – sticky and grey (era 1960)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)
Client Sample ID: 3C		Lab Sample ID: 552103293-0009				
Sample Description: Room 210/interior window caulking applied to sides of window frame – sticky and grey (era 1960)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)
Client Sample ID: 4A		Lab Sample ID: 552103293-0010				
Sample Description: Room 115/interior window caulking applied to bottom of window frame – grey (era 1965)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	97.0%	3% Chrysotile	
Client Sample ID: 4B		Lab Sample ID: 552103293-0011				
Sample Description: Room 116/interior window caulking applied to bottom of window frame – grey (era 1965)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)
Client Sample ID: 4C		Lab Sample ID: 552103293-0012				
Sample Description: Room 214/interior window caulking applied to bottom of window frame – grey (era 1965)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)
Client Sample ID: 5A		Lab Sample ID: 552103293-0013				
Sample Description: Room 107/interior window caulking applied to bottom of window frame – grey (era 1960)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	97.0%	3% Chrysotile	
Client Sample ID: 5B		Lab Sample ID: 552103293-0014				
Sample Description: Room 108/interior window caulking applied to bottom of window frame – grey (era 1960)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)
Client Sample ID: 5C		Lab Sample ID: 552103293-0015				
Sample Description: Corridor 200/interior window caulking applied to bottom of window frame – grey (era 1960)						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)



EMSL Canada Inc.

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<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552103293
Customer ID: 55DCSL97
Customer PO: 30065534
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 6A **Lab Sample ID:** 552103293-0016

Sample Description: Room 112/concrete block-filler paint (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray/White	0.0%	100.0%	None Detected	

Client Sample ID: 6B **Lab Sample ID:** 552103293-0017

Sample Description: Room 211/concrete block-filler paint (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray/White	0.0%	100.0%	None Detected	

Client Sample ID: 6C **Lab Sample ID:** 552103293-0018

Sample Description: Room 213/concrete block-filler paint (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray/White	0.0%	100.0%	None Detected	

Client Sample ID: 7A **Lab Sample ID:** 552103293-0019

Sample Description: Room 112/Concrete block mortar (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 7B **Lab Sample ID:** 552103293-0020

Sample Description: Room 211/Concrete block mortar (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 7C **Lab Sample ID:** 552103293-0021

Sample Description: Room 213/Concrete block mortar (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 8A **Lab Sample ID:** 552103293-0022

Sample Description: Room 107/Exterior brick mortar (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 8B **Lab Sample ID:** 552103293-0023

Sample Description: Room 108/Exterior brick mortar (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	



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<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552103293
Customer ID: 55DCSL97
Customer PO: 30065534
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 8C **Lab Sample ID:** 552103293-0024
Sample Description: Room 108A/Exterior brick mortar (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9A **Lab Sample ID:** 552103293-0025
Sample Description: Room 112/Exterior brick mortar (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9B **Lab Sample ID:** 552103293-0026
Sample Description: Room 115/Exterior brick mortar (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9C **Lab Sample ID:** 552103293-0027
Sample Description: Room 116/Exterior brick mortar (era 19) 65

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10A **Lab Sample ID:** 552103293-0028
Sample Description: Room 115/Exterior window caulking – grey (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10B **Lab Sample ID:** 552103293-0029
Sample Description: Room 107/Exterior window caulking – grey (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10C **Lab Sample ID:** 552103293-0030
Sample Description: Room 108/Exterior window caulking – grey (era 1960)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 11A **Lab Sample ID:** 552103293-0031
Sample Description: Room 112/Exterior window caulking – grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021	Gray	0.0%	96.0%	4% Chrysotile	



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EMSL Canada Order 552103293
Customer ID: 55DCSL97
Customer PO: 30065534
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 11B

Lab Sample ID: 552103293-0032

Sample Description: Room 115/Exterior window caulking – grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)

Client Sample ID: 11C

Lab Sample ID: 552103293-0033

Sample Description: Room 116/Exterior window caulking – grey (era 1965)

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/10/2021					Positive Stop (Not Analyzed)

Analyst(s):

Ioana Taina PLM (7)
Kira Ramphal PLM (16)

Reviewed and approved by:

Matthew Davis or other approved signatory
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 03/10/2021 16:33:16



Your Project #: 30065534
Site Location: JT TUCK PS
Your C.O.C. #: NA

Attention: Dwayne Kellyman

ARCADIS Canada Inc
121 Granton Dr
Unit 12
Richmond Hill, ON
CANADA L4B 3N4

Report Date: 2021/03/08
Report #: R6546275
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C157225

Received: 2021/03/03, 19:39

Sample Matrix: Paint
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals in Paint	1	2021/03/05	2021/03/05	CAM SOP-00408	EPA 6010D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA. Where applicable, the analytical testing herein was performed in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Bureau Veritas is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 30065534
Site Location: JT TUCK PS
Your C.O.C. #: NA

Attention: Dwayne Kellyman

ARCADIS Canada Inc
121 Granton Dr
Unit 12
Richmond Hill, ON
CANADA L4B 3N4

Report Date: 2021/03/08
Report #: R6546275
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C157225

Received: 2021/03/03, 19:39

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marijane Cruz, Senior Project Manager

Email: Marijane.Cruz@bureauveritas.com

Phone# (905)817-5756

=====

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

BV Labs Job #: C157225
Report Date: 2021/03/08

ARCADIS Canada Inc
Client Project #: 30065534
Site Location: JT TUCK PS
Sampler Initials: DK

ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

BV Labs ID		OZG349		
Sampling Date		2021/02/25		
COC Number		NA		
	UNITS	P-1 BEIGE ON CONCRETE BLOCK ROOM 112	RDL	QC Batch
Metals				
Lead (Pb)	mg/kg	180	1.6	7231274
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



BUREAU
VERITAS

BV Labs Job #: C157225
Report Date: 2021/03/08

ARCADIS Canada Inc
Client Project #: 30065534
Site Location: JT TUCK PS
Sampler Initials: DK

TEST SUMMARY

BV Labs ID: OZG349
Sample ID: P-1 BEIGE ON CONCRETE BLOCK ROOM 112
Matrix: Paint

Collected: 2021/02/25
Shipped:
Received: 2021/03/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	7231274	2021/03/05	2021/03/05	Jolly John



BUREAU
VERITAS

BV Labs Job #: C157225
Report Date: 2021/03/08

ARCADIS Canada Inc
Client Project #: 30065534
Site Location: JT TUCK PS
Sampler Initials: DK

GENERAL COMMENTS

Sample OZG349 [P-1 BEIGE ON CONCRETE BLOCK ROOM 112] : Metals: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: C157225

Report Date: 2021/03/08

QUALITY ASSURANCE REPORT

ARCADIS Canada Inc

Client Project #: 30065534

Site Location: JT TUCK PS

Sampler Initials: DK

QC Batch	Parameter	Date	Matrix Spike		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7231274	Lead (Pb)	2021/03/05	NC	75 - 125	<1.0	mg/kg	25 (1)	35	100	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

(1) Duplicate Parent ID



BUREAU
VERITAS

BV Labs Job #: C157225
Report Date: 2021/03/08

ARCADIS Canada Inc
Client Project #: 30065534
Site Location: JT TUCK PS
Sampler Initials: DK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



6740 Campobello Road, Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:	
Company Name:	ARCADIS Canada Inc.	Company Name:		Quotation #:		03-Mar-21 19:39	
Contact Name:	Dwayne Kellyman	Contact Name:		P.O. #:		Marijane Cruz	
Address:	121 Granton Drive Unit #12	Address:		Project #:	30082135	C157225	
	Richmond Hill, ON L4B 3N4			Site Location:	Du Chene		
Phone:	905-882-5984	Fax:	905-882-8962	Site #:			
Email:	Dwayne.Kellyman@arcadis.com, nguyen.ada@arcadis.com	Email:		Sampled By:	Dwayne Kellyman	ENV-1007	
Note: For MOE Regulated Drinking Water samples, please use the Drinking Water COC.				ANALYSIS REQUESTED (Please be specific):		TURNAROUND TIME (TAT) REQUIRED:	
Regulation 153 (2011)		Other Regulations		MOE Regulated Drinking Water? (Y/N) Metals Field Filtered? (Y/N) Lead		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> MISA Table <input type="checkbox"/> PWQO Municipality: For RSC <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other (Specify):						Regular (Standard) TAT: <input checked="" type="checkbox"/> (5-7 working days for most tests)	
Include Criteria on Certificate of Analysis (Y/N)?						Rush TAT: ***Samples must be received by 3pm guarantee your TAT*** Rush Confirmation #: PN <input type="checkbox"/> 1 day <input type="checkbox"/> 2 days <input type="checkbox"/> 3 days DATE Req'd:	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM						TAT for certain tests are > 5 days. Please contact your Project Manager for details.	
Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)			# of Cont.	COMMENTS / TAT COMMENTS
1 P-1 Beige on concrete block Room 124	25-Feb-21		Paint				
2							
3							
4							
5							
6							
7							
8							
9							
10							
RELINQUISHED BY: (Signature/Print)	Date (YYYY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date (YYYY/MM/DD)	Time:	# JARS USED AND NOT SUBMITTED	Laboratory Use Only
Dwayne Kellyman	2020/03/03		Dipika Singh	2021/03/03	19:39		Custody Seal Yes No Present X Intact X Temperature (°C) on Receipt N/A

MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

Maxxam Analytics International Corporation o/a Maxxam Analytics

APPENDIX C

Summary of Asbestos, Lead and Silica Work Classifications



TABLE C-1
SUMMARY OF CLASSIFICATION OF
TYPE 1, 2 AND 3 OPERATIONS
(Ont. Reg. 278/05)

TYPE 1 OPERATIONS

- removing less than 7.5 m² asbestos-containing ceiling tiles;
- removing non-friable asbestos-containing material other than ceiling tiles, if the material is removed without being broken, cut, drilled, abraded, ground, sanded or vibrated;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the material is wetted and the work is done only using non-powered, hand-held tools; and
- removing less than 1 m² of drywall in which asbestos-containing joint compounds have been used.

TYPE 2 OPERATIONS

- removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling;
- removal of one square metre or less of friable asbestos-containing material;
- enclosing friable asbestos-containing material;
- applying tape or a sealant or other covering to asbestos-containing pipe or boiler insulation;
- removing 7.5 m² or more asbestos-containing ceiling tiles (if removed without being broken, cut, drilled, abraded, ground, sanded or vibrated);
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the material is not wetted and the work is done only using non-powered, hand-held tools;
- removal of one square metre or more of drywall in which asbestos-containing joint compounds have been used;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the work is done using power tools that are attached to dust-collecting devices equipped with HEPA filters;
- cleaning or removing filters used in air-handling equipment in a building that has asbestos-containing sprayed fireproofing.

TABLE C-1 (Continued)
SUMMARY OF CLASSIFICATION OF
TYPE 1, 2 AND 3 OPERATIONS
(Ont. Reg. 278/05)

TYPE 3 OPERATIONS

- removal of more than one square metre of friable asbestos-containing material;
- spray application of a sealant to friable asbestos-containing material;
- cleaning or removing air-handling equipment, including rigid ducting but not including filters, in a building that has sprayed asbestos-containing fireproofing;
- repairing or demolishing a kiln, metallurgical furnace or similar structure that is made in part of asbestos-containing refractory materials;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing materials, if the work is done using power tools that are not attached to dust-collecting devices equipped with HEPA filters.

TABLE C-2
SUMMARY OF CLASSIFICATION OF
LEAD-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE – LEAD ON CONSTRUCTION PROJECTS, APRIL 2011

Type 1 Operations	Type 2 Operations		Type 3 Operations	
	Type 2a	Type 2b	Type 3a	Type 3b
<0.05 mg/m ³	>0.05 to 0.50 mg/m ³	>0.50 to 1.25 mg/m ³	>1.25 to 2.50 mg/m ³	>2.50 mg/m ³

Note: The classification of Type 1, 2 and 3 operations is based on presumed airborne concentrations of lead, as shown above.

TYPE 1 OPERATIONS

- application of lead-containing coatings with a brush or roller;
- removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap;
- removal of lead-containing coatings or materials using a power tool that has an effective dust collection system equipped with a HEPA filter;
- installation or removal of lead-containing sheet metal;
- installation or removal of lead-containing packing, babbitt or similar material;
- removal of lead-containing coatings or materials using non-powered hand tools, other than manual scraping or sanding;
- soldering.

TYPE 2 OPERATIONS

Type 2a Operations

- welding or high temperature cutting of lead-containing coatings or materials outdoors. This operation is considered a Type 2a operation only if it is short-term, not repeated, and if the material has been stripped prior to welding or high temperature cutting. Otherwise it will be considered a Type 3a operation;
- removal of lead-containing coatings or materials by scraping or sanding using non-powered hand tools;
- manual demolition of lead-painted plaster walls or building components by striking a wall with a sledgehammer or similar tool.

Type 2b Operations

- spray application of lead-containing coatings.

TABLE C-2 (Continued)
SUMMARY OF CLASSIFICATION OF
LEAD-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE – LEAD ON CONSTRUCTION PROJECTS, APRIL 2011

TYPE 3 OPERATIONS

Type 3a Operations

- welding or high temperature cutting of lead-containing coatings or materials indoors or in a confined space;
- burning of a surface containing lead;
- dry removal of lead-containing mortar using an electric or pneumatic cutting device;
- removal of lead-containing coatings or materials using power tools without an effective dust collection system equipped with a HEPA filter;
- removal or repair of a ventilation system used for controlling lead exposure;
- demolition or cleanup of a facility where lead-containing products were manufactured;
- an operation that may expose a worker to lead dust, fume or mist that is not a Type 1, Type 2, or Type 3b operation

Type 3b Operations

- abrasive blasting of lead-containing coatings or materials;
- removal of lead-containing dust using an air mist extraction system.

TABLE C-3
SUMMARY OF CLASSIFICATION OF SILICA-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE, SILICA ON CONSTRUCTION PROJECTS, APRIL 2011

	Type 1 Operations	Type 2 Operations	Type 3 Operations
Cristobalite and Tridymite	>0.05 to 0.50 mg/m ³	>0.50 to 2.50 mg/m ³	>2.5 mg/m ³
Quartz and Tripoli	>0.10 to 1.0 mg/m ³	>1.0 to 5.0 mg/m ³	>5.0 mg/m ³

Note: The classification of silica-containing construction tasks is based on presumed concentrations of respirable crystalline silica, as shown above.

TYPE 1 OPERATIONS

- The drilling of holes in concrete or rock that is not part of a tunnelling operation or road construction.
- Milling of asphalt from concrete highway pavement.
- Charging mixers and hoppers with silica sand (sand consisting of at least 95 per cent silica) or silica flour (finely ground sand consisting of at least 95 per cent silica).
- Any other operation at a project that requires the handling of silica-containing material in a way that may result in a worker being exposed to airborne silica.
- Entry into a dry mortar removal or abrasive blasting area while airborne dust is visible for less than 15 minutes for inspection and/or sampling.
- Working within 25 metres of an area where compressed air is being used to remove silica-containing dust outdoors.

TYPE 2 OPERATIONS

- Removal of silica containing refractory materials with a jackhammer.
- The drilling of holes in concrete or rock that is part of a tunnelling or road construction.
- The use of a power tool to cut, grind, or polish concrete, masonry, terrazzo or refractory materials.
- The use of a power tool to remove silica containing materials.
- Tunnelling (operation of the tunnel boring machine, tunnel drilling, tunnel mesh installation).
- Tuckpoint and surface grinding.
- Dry mortar removal with an electric or pneumatic cutting device.
- Dry method dust cleanup from abrasive blasting operations.
- The use of compressed air outdoors for removing silica dust.
- Entry into area where abrasive blasting is being carried out for more than 15 minutes.

TABLE C-3 (Continued)
SUMMARY OF CLASSIFICATION OF SILICA-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE, SILICA ON CONSTRUCTION PROJECTS, APRIL 2011

TYPE 3 OPERATIONS

- Abrasive blasting with an abrasive that contains ≥ 1 per cent silica.
- Abrasive blasting of a material that contains ≥ 1 per cent silica.

Arcadis Canada Inc.

121 Granton Drive, Suite 12, Richmond Hill, Ontario L4B 3N4

Tel 905 764 9380

www.arcadis.com

ARCHITECTURAL

Item 1 Specifications **Section 09510 Acoustic Unit Ceiling**

Under section **2.1 Materials**, Item 1. Acoustic Panel Type (ACT-1) **delete** entire item 1.1 ACT-1:... and **replace** with new item 1.1:

1. **ACT-1:** 610 mm x 1220 mm x 25mm, fine fissured, #1729 by Armstrong.
Suspension system: 15/16" Prelude MX, white, by Armstrong.

Item 2 Refer to attached Addendum 1 from KTS Consulting and revised drawing attachments (4 pages).

Question 1

Please clarify: Who is supposed to carry the price of M&E work as per Tender Roof Replacement Section 01 11 00 Scope of work items 6.3, 6.8 & 6.13: Roofing Subcontractor or M&E Subs?

Response 1: This is to be determined by the GC and his sub.

Question 2

Can the roofer use flameless solutions instead of a torch-applied cap sheet to mitigate the risk of fires? This will not impact performance or warranty.

Response 2: Yes, however Materials and installation methods will need to be reviewed/approved prior to use.

End of Addendum

Items to be included in Addendum #1

Re: RFT# 21-116 – John T. Tuck P.S.

Page 1 of 2

Item #1

Section 08 52 00 - Aluminum Windows

Sub-Section 3.0 Scope of Work

Add Paragraph: 3.0.14

All existing interior stools to be wire brushed, cleaned and painted with two coats of finish paint/primer by Benjamin More or equal. Colour to be chosen by the client.

Item #2

Section 08 52 00 - Aluminum Windows

Sub-Section 3.0 Scope of Work

Paragraph: 3.0.3

Replace Paragraph and Replace With:

Within the school rooms where an existing suspended ceiling is located and attached to the existing window framing, it will be necessary for the general contractor or their sub-contractor to temporarily remove the adjacent tile & T-bar grid system, modify same and re-install to new window framing.

Where an existing original ceiling tile system exists and is in contact with the existing window head frame, the installer must execute due diligence in cutting (separating) the joint line between the tile and existing window frame to avoid unnecessary ceiling damage. Any resulting adverse tile line damage that remains following installation of the new window main frame will require concealment with new aluminum trim sufficient in covering such adverse conditions.

Item #3

Section 08 52 00 - Aluminum Windows

Sub-Section 3.0 Scope of Work

Paragraph: 3.0.8

Remove Paragraph and Replace With:

All existing electrical conduit presently installed through the existing window systems must be temporarily removed and re-installed. Such removal/replacement costs require inclusion in the window replacement portion of the main general contract. Such existing wiring locations are identified on drawing A.2 Window Elevations.

Item #4

Section 08 52 00 - Aluminum Windows

Sub-Section 9.0 Fabrication

Add Paragraph: 9.13

Projected Awning Sash, Top Hung Project-Out (THOO).

Fabricate sash using extruded components. Position sashes on main frame to provide direction of opening specified, free and smooth operation, without binding or sticking against main frame members. Design sashes for not MORE than 45 degree opening with mechanical restrictors that will provide 4" sash opening. Equip each unit with (collapsible) roto-type operators (push-bar type mechanical openers not acceptable). Provide aluminum screens as per specifications.

Item #5

Drawing A.2 – Window Elevations

Window Type W8

Drawing Change:

Provide one (1) W8 window with an upper spandrel panel in lieu of sealed unit, as shown on the attached revised drawing A.3. This change is required to accommodate the removal and re-installation of existing electrical conduit. The location of this specific W8 window is indicated on the attached (revised) A.2 Window Elevation drawing.

Item #6

Drawing A.3 - Window Fenestrations

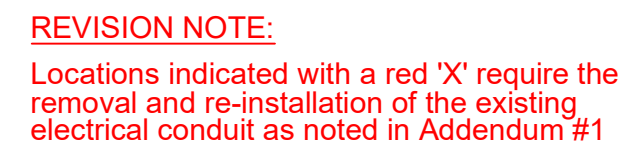
Window Type W11

Revise Design:

Provide window framing, operable sash and glazing as per the revised A.3 Window Fenestration drawing attached to this addendum.

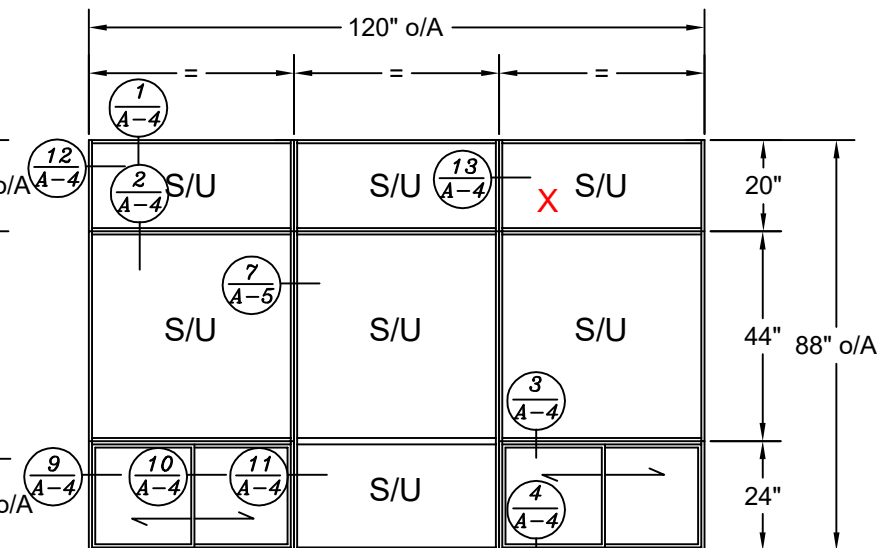
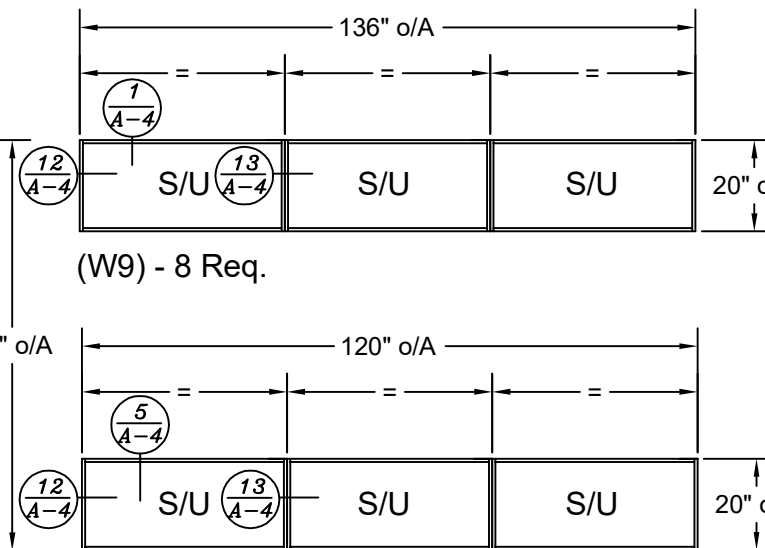
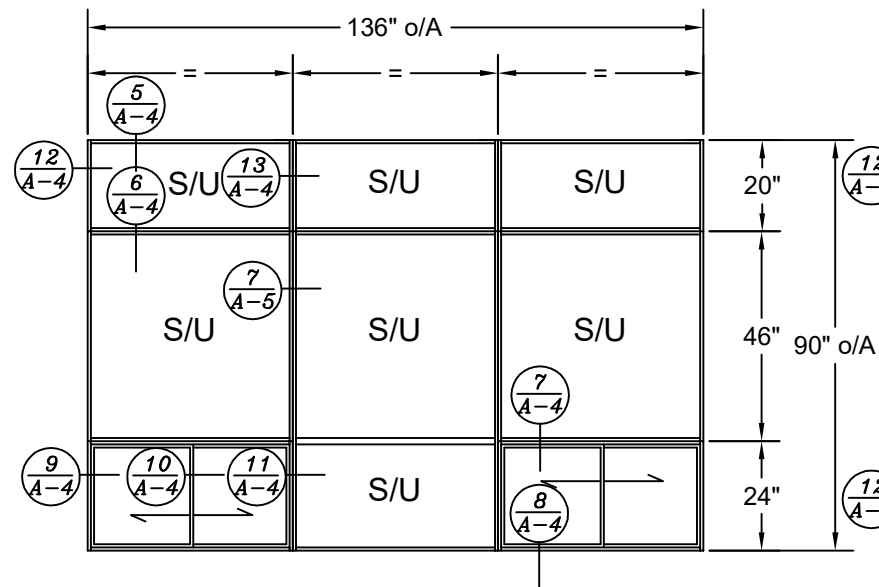
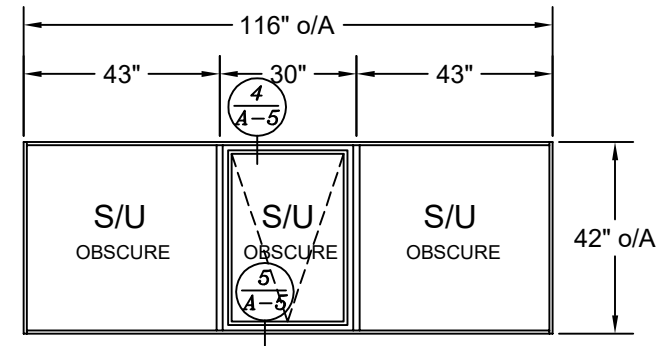
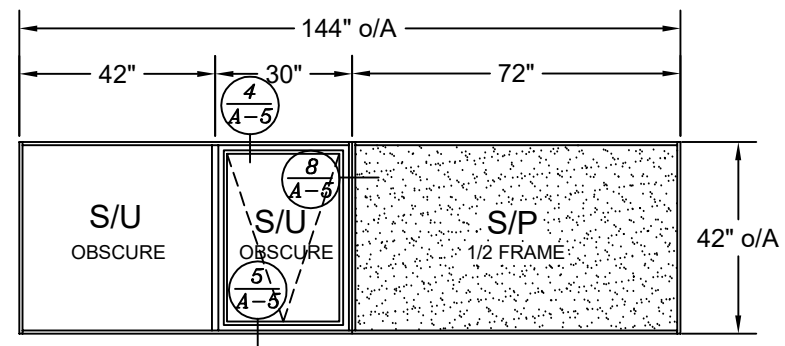
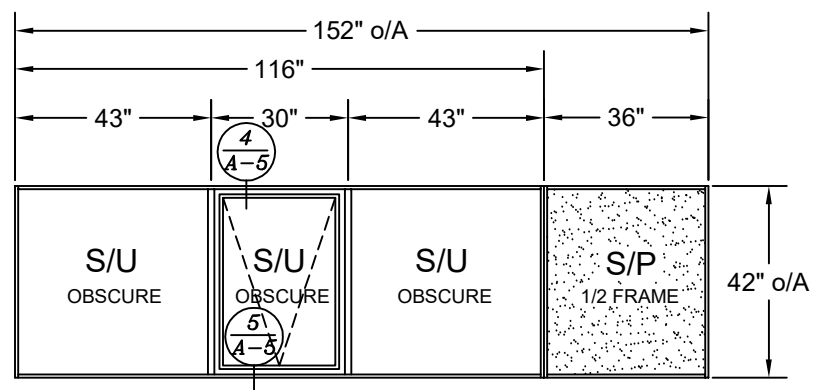
Please destroy all previously issued Addendum #1 copies

Regards,
Paul McCarty
Project Manager
KTS Consulting

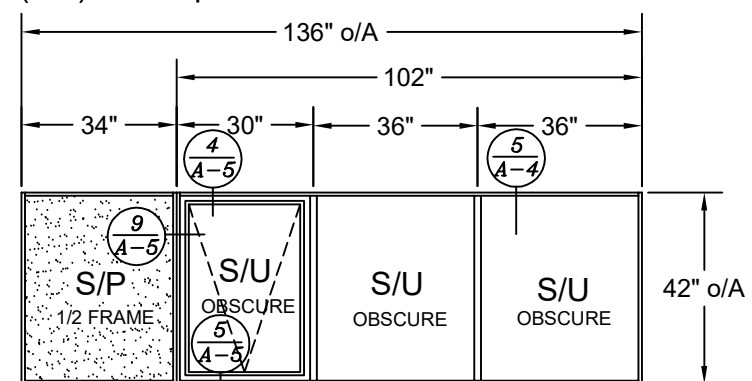
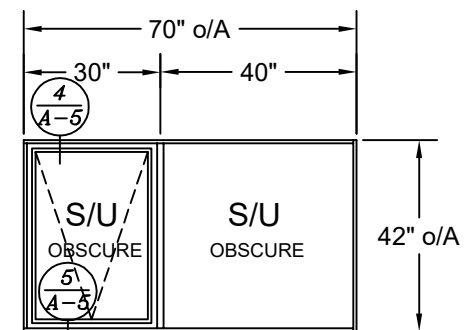
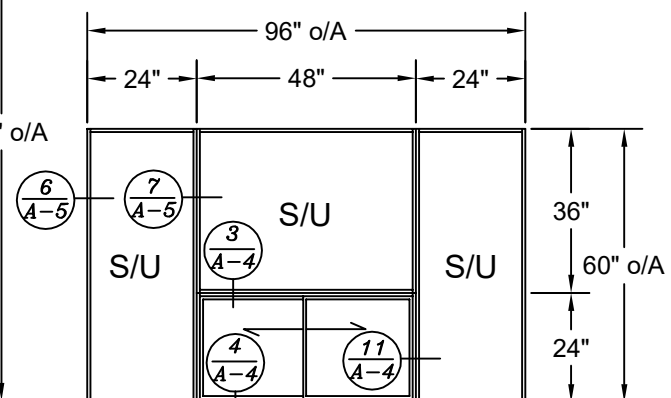
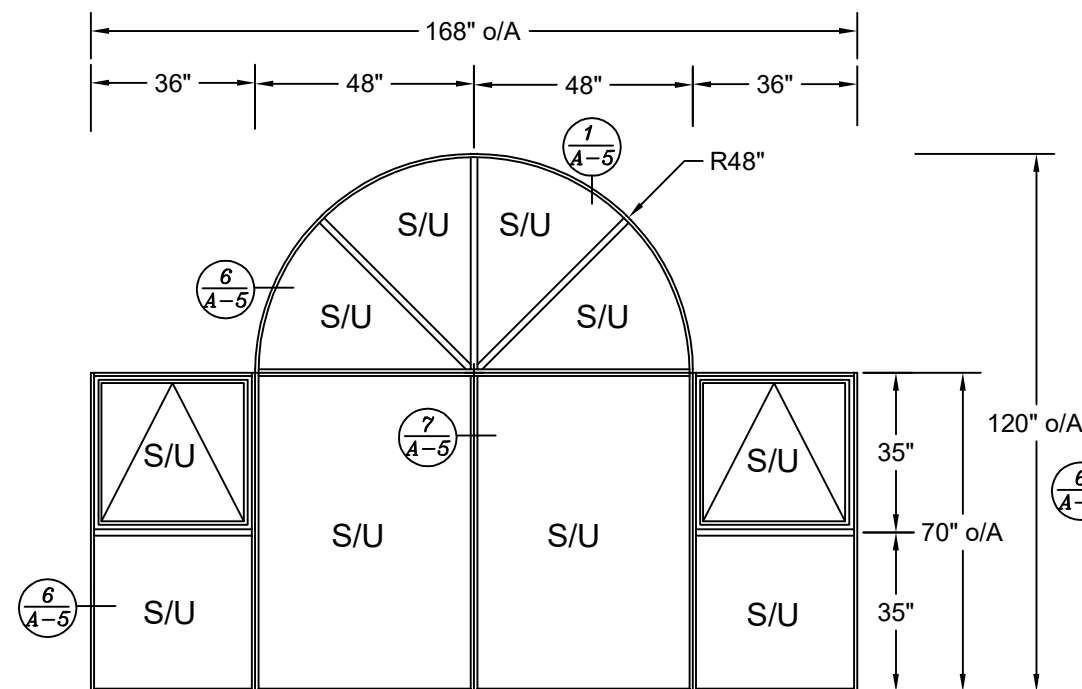


EAST ELEVATION - Photo #'s 4, 5 & 6





(W8) - 11 Req. (Rev)
X - 1 window require spandrel panel at this location



**PROJECT
NORTH**

LOCATION
3365 SPRUCE AVENUE
BURLINGTON, ONTARIO

SCHOOL



John T
Tuck
Public
School

ARCHITECT

[S/U] - SEALED UNITS
W1 - WINDOW NUMBER
[S/P] - SPANDREL PANELS

CONSULTANT

**KTS CONSULTING AND
PROJECT MANAGEMENT INC.**
6 QUEEN'S COURT, GRIMSBY ON.
L3M 1C1

Tel : 905-643-3398
Fax : 905-643-3669
MOBILE : 905-921-2808

PROFESSIONAL STAMP

NO.	DESCRIPTION	DATE
REVISIONS/DRAWING ISSUE		

WINDOWS REPLACEMENTS

**JOHN T TUCK
PUBLIC SCHOOL**

**3365 SPRUCE AVENUE
BURLINGTON, ONTARIO**

AC

K.T.S.

100-04-2021

NTS

03/26/21

WINDOWS FENESTRATIONS

A-3 Rev